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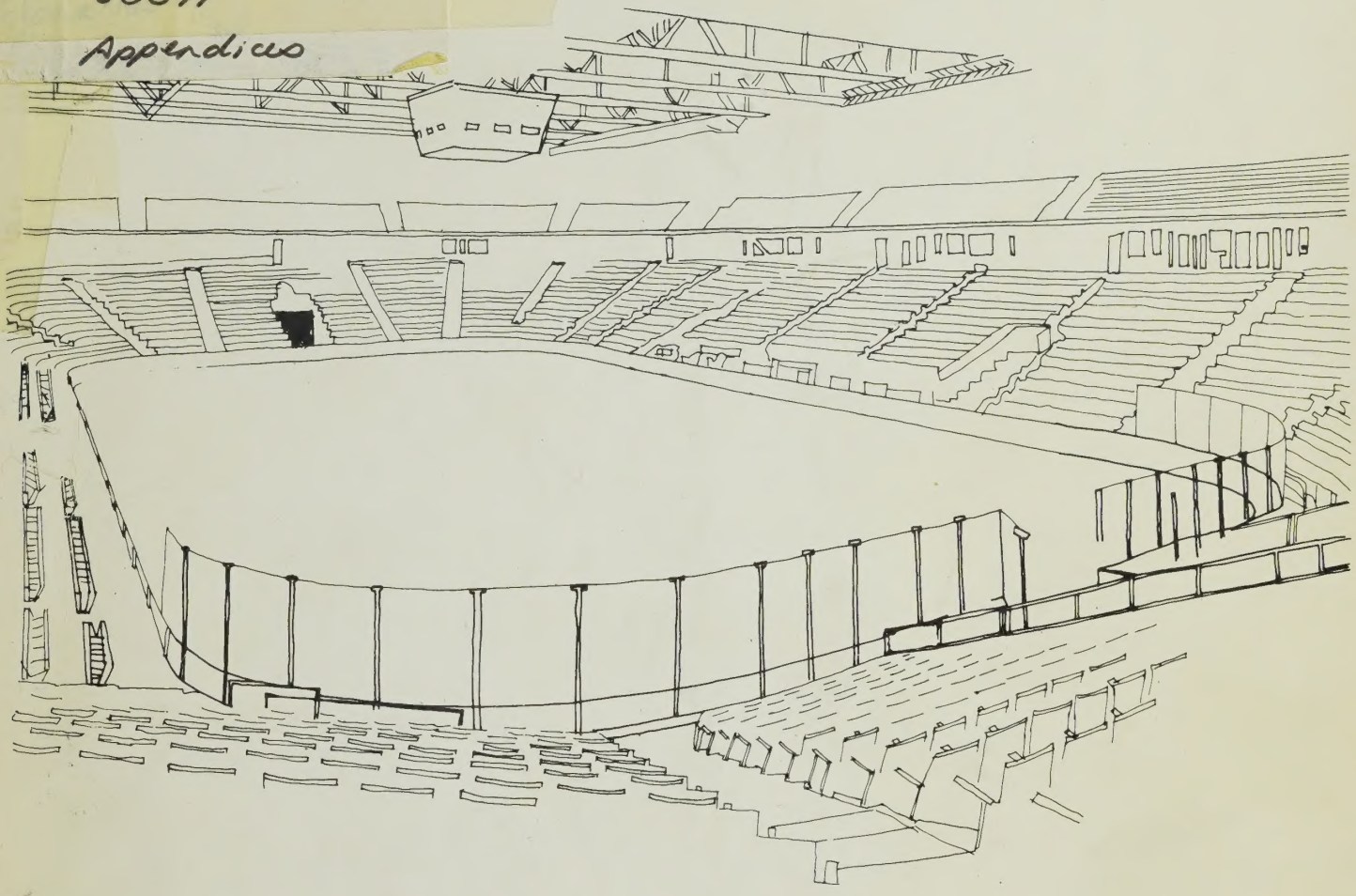
Appendices

City of Hamilton



Stadium/Arena Feasibility Study

Phase 2 Appendices

IBI Group

in association with
Group Eight Engineering Ltd.
Hanscomb Roy Associates
Economic Research Associates

September 1980

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CITY OF HAMILTON

STADIUM/ARENA FEASIBILITY STUDY

PHASE 2 APPENDICES

IBI GROUP

in association with
Group Eight Engineering Ltd.
Hanscomb Roy Associates
Economic Research Associates

September 1980

IBI Group
156 Front Street West
6th Floor
Toronto, Canada
M5J 2L6
(416) 596-1930

September 10, 1980

Mr. J.R. Jones
Secretary, Board of Control
City Hall
Hamilton, Ontario

Dear Mr. Jones:

Stadium/Arena Feasibility Study

In accordance with the terms of reference for this study and our proposal dated June 17, 1980, we are pleased to submit our final report. This report presents our findings in terms of public opinion, market estimates, site comparisons, design concepts, financial/operations analyses, economic and other impacts, and related issues. In accordance with the terms of reference, Phase 1 of the study focussed on an initial assessment of markets, sites, facilities and financial considerations, as well as a public opinion poll, to draw interim conclusions regarding the desirability and feasibility of new stadium/arena facilities for Hamilton. Following review of our interim conclusions at the end of July, the Steering Committee decided that we should proceed with Phase 2, comprising more detailed assessment of markets, sites, design concepts, financial/operations requirements, economic and other impacts and final conclusions and recommendations.

Reflecting this structure, two volumes of detailed appendices accompany this report: the Phase 1 Appendices describing work carried out in July and the Phase 2 Appendices describing the more detailed work leading to this final report. Overall results of the study are summarized in the Summary Report.

In particular, our conclusions and recommendations are summarized in Section 7 of the Summary Report. We find that the public surveys, market analysis, site comparison, design concepts and financial/operations/economic analyses support the desirability and feasibility of a new arena/trade centre and a new or improved stadium provided suitable financing can be arranged. If funding can be arranged, a new stadium, located on the mountain south-east of Limeridge Road and Upper Wentworth Street, would be preferable, but an expanded/refurbished Ivor Wynne Stadium would also be suitable. Such a new or improved stadium with at least 40,000 seats, is essential to the continued viability of a CFL football team in Hamilton and to the obtaining of an NHL team without a territorial payment to the Toronto Maple Leafs. At least 50% Federal/Provincial funding seems likely for a combined arena/trade centre facility and similar financial support may be forthcoming for a new or improved stadium. The preferred site for the arena/trade centre is on the east side of Bay Street North between King Street West and Merrick Street, adjacent to Jackson Square and operated jointly with the existing Convention

IBI is a group of companies practicing professional consulting and is affiliated with Beinnaker/Irwin Associates Architects, Engineers

Centre. An NHL team is central to the financial feasibility of the new arena/trade centre and there seems to be a reasonable prospect that private interests would purchase an existing NHL team for Hamilton if a suitable facility were available. If 50% senior government funding is obtained, the remaining municipal share would cost the average municipal tax payer in Hamilton approximately $1.00 - $1.75 per month in additional taxes.

Substantial economic benefits, in terms of more jobs and increased income to residents, businesses and the City of Hamilton through tax revenues, would flow from the new facilities. Social benefits would also result including improved availability of facilities for amateur sports and community events, as well as the availability of sporting/recreational/ trade show events within Hamilton. We believe that considerable civic pride and momentum would be generated by these developments.

Should the City of Hamilton decide to proceed with the stadium and arena/ trade centre, negotiations should be pressed regarding senior government funding and the obtaining of an NHL team for Hamilton. Depending on the results and timing of such negotiations, more detailed planning and design of the facilities could proceed, such that the new facilities could be in operation by the summer/fall of 1984 or an expanded/refurbished Ivor Wynne Stadium by the summer of 1983.

The purpose of this report is to provide information on the desirability, feasibility, nature/location, and financial/economic operational attributes of major arena/stadium facilities for the City of Hamilton. We trust that the report fulfills these purposes and will assist the City in these important decisions.

We acknowledge with thanks the close co-operation received from the Steering Committee, City and Regional officials, promotors and facility operators who provided information, and members of the public who responded to the public surveys. The findings and recommendations of the study have drawn upon this assistance but are the responsibility of the consultant team.

We appreciate this opportunity to assist the City of Hamilton, and look forward to discussing the report and its implications with the Committee and Council in the near future.

Yours very truly,

IBI GROUP

Neal A. Irwin
Managing Director

PHASE 2 APPENDICES

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STADIUM/ARENA FEASIBILITY STUDY

APPENDIX 2A

SURVEY OF PUBLIC

HAMILTON ARENA/STADIUM PROJECT

PHASE II

Prepared for

IBI GROUP

by

GOLDFARB CONSULTANTS

Project # 809068

September, 1980

PURPOSE

After careful discussions with personnel from IBI Group and Goldfarb Consultants, a research study was planned and executed.

The overall purpose of the study was to survey people in Hamilton and the surrounding area concerning the leisure time events they had attended in the last year in Hamilton, Toronto, Kitchener and Buffalo, and to ascertain the expenditures associated with those events.

Secondly, the study was designed to obtain a reading on expected behaviour regarding leisure events assuming Hamilton had a facility to allow the events to be held there.

METHODOLOGY

The study was conducted by telephone between August 29th and September 2nd 1980. The sample was one-half male and one-half female, and all respondents were fourteen years of age or older.

The total sample was composed of two sub-samples. From the Primary Market Area of Hamilton, Ancaster, Dundas, Burlington, Grimsby and Stoney Creek a total of four hundred respondents were drawn. Another two hundred and fifteen respondents were drawn from the Secondary Market Area of Oakville, Guelph, Cambridge, Waterloo, St. Chatherines, Brantford, Niagara Falls and Welland.

The population in each sample is proportional to the contribution each city or municipality makes to the overall population.

At a 95% confidence level, the Primary sample is accurate to within plus or minus 5%, and the Secondary sample is accurate to within plus or minus 7.1%.

The results of the study have been presented in the form of a computer printout.

4-1
5-
6-
7-
8-
9-

1 2 3

GOLDFARB CONSULTANTS

PROJECT # 809068

Good morning/afternoon/evening. My name is_____ of Goldfarb Consultants, a national survey research company. We are conducting a survey concerning how people spend their time and would appreciate just a few mintues of your time. May I ask you a few questions? Thank you.

1. Respondent is ...

Male ☐10-1 Female ☐2

CHECK YOUR QUOTA AND TERMINATE IF NECESSARY

2. In which of the following age categories do you fall?

Under 14	☐ TERMINATE
14 - 17	☐11-1 CHECK QUOTA; TERMINATE
18 - 24	☐2 IF NECESSARY.
25 - 34	☐3
35 - 44	☐4
45 - 64	☐5
65 or over	☐6

3a) Within the last year, have you attended any of the following events?

3b) (FOR EACH ONE ATTENDED, ASK) How many times have you attended_____in the last year?

3c) (FOR EACH ONE ATTENDED AND MARKED WITH AN ASTERISK (*), ASK) Do you have a yearly subscription to, or season tickets for_____?

3d) (FOR EACH ONE ATTENDED, ASK) When you last attended_____, did you go out for a meal, drink or to experience any other type of entertainment at a restaurant, club or entertainment spot separate from where the event was held?

3e) (IF "YES" TO Q.3d), ASK) How much did you yourself spend in total on this meal/drink/entertainment? Include only the price paid for you, not other members of your family or party that went with you.

3f) (FOR EACH ONE ATTENDED, ASK) How did you get there -- by car or by public transportation? (IF CAR, ASK) What did you spend on i)gas. ii) parking? (IF PUBLIC TRANSPORTATION, ASK) What did you yourself spend on public transportation?

3g) (FOR EACH ONE ATTENDED, ASK) And what did you yourself spend on each of the following when you last went to_____?

i) Any food or drink bought at the site at the event.
ii) Any overnight hotel/motel charges.
iii) Any other items bought at the site of the event (i.e. souvenirs, programs, etc.)
iv) Any other expenses associated with going to it, excluding the meal/drink/entertainment and other costs previously outlined.

	3a) Attended in last year		3b) How many times	3c) Have subscription/ seasons tickets		3d) Went out for meal/drink/ entertainment		3e) Spent on meal/ drink/ entertainment	3f) How arrived there - Public transportation		- IF CAR - i) Gas	- IF CAR - ii) Parking	- IF PUBLIC TRANSPORTATION - Fare	3g) Amount spent on... i) Food/drink	ii) Hotel/motel	iii) Other event costs (souvenirs, programs etc.)	iv) Other
	Yes	No		Yes	No	Yes	No		Car								
*.A National Hockey League game in Toronto or Buffalo	☐12-1	☐2	____13-	☐14-1	☐2	☐15-1	☐2	____16-17	☐18-1	☐2	19-20	21-22	____19-22	____23-24	____25-27	____28-29	____30-31
*.A Canadian Football League game in Hamilton	☐32-1	☐2	____33-	☐34-1	☐2	☐35-1	☐2	____36-37	☐38-1	☐2	39-40	41-42	____39-42	____43-44	____45-47	____48-49	____50-51
*.A Canadian Football League game in Toronto	☐52-1	☐2	____53-	☐54-1	☐2	☐55-1	☐2	____56-57	☐58-1	☐2	59-60	61-62	____59-62	____63-64	____65-67	____68-69	____70-71
*.A National Football League game in Buffalo	☐72-1	☐2	____73-	☐74-1	☐2	☐75-1	☐2	____76-77	☐78-1	☐2	79-80	*10-11	____79-11	____12-13	____14-16	____17-18	____19-20
*.A Blue Jays Baseball game	☐21-1	☐2	____22-	☐23-1	☐2	☐24-1	☐2	____25-26	☐27-1	☐2	28-29	30-31	____28-31	____32-33	____34-36	____37-38	____39-40
*.A Junior Hockey League game in St. Catherines, Niagara Falls, Kitchener-Waterloo or Toronto	☐41-1	☐2	____42-	☐43-1	☐2	☐44-1	☐2	____45-46	☐47-1	☐2	48-49	50-51	____48-51	____52-53	____54-56	____57-58	____59-60

*DUP 1-3, 4-2
DUP 5-9

	3a) Attended in last year: Yes	3a) Attended in last year: No	3b) How many times	3c) Have subscription/ seasons tickets: Yes	3c) Have subscription/ seasons tickets: No	3d) Went out for meal/drink/ entertainment: Yes	3d) Went out for meal/drink/ entertainment: No	3e) Spent on meal/ drink/ entertainment	3f) How arrived there - Public transportation: Car	3f) How arrived there - Public transportation: Public transportation	3f) - IF CAR - i) Gas	3f) - IF CAR - ii) Parking	3f) - IF PUBLIC TRANSPORTATION - Fare	3g) Amount spent on... i) Food/drink	3g) Amount spent on... ii) Hotel/motel	3g) Amount spent on... iii) Other event costs (souvenirs, programs etc.)	3g) Amount spent on... iv) Other	
.Any other professional or amateur sporting event that you attended live, or that was presented via closed circuit television, in an arena or facility in Toronto, Buffalo, Niagara Falls, or Kitchener-Waterloo	☐61-1	☐2	____62-			☐63-1	☐2	____64-65	☐64-1	☐2	67-68	69-70	____67-70	____71-72	____73-75	____76-77	____78-79	1 4- 1
.The Home Show in Toronto	☐80-1	☐2	____*10-			☐11-1	☐2	____12-13	☐14-1	☐2	15-16	17-18	____15-18	____19-20	____21-23	____24-25	____26-27	
.The Sportsman Show in Toronto	☐28-1	☐2	____29-			☐30-1	☐2	____31-32	☐33-1	☐2	34-35	36-37	____34-37	____38-39	____40-42	____43-44	____45-46	
.The Ice Capades in Toronto, Buffalo, Kitchener-Waterloo	☐47-1	☐2	____48-			☐49-1	☐2	____50-51	☐52-1	☐2	53-54	55-56	____53-56	____57-58	____59-61	____62-63	____64-65	
.A circus in Toronto, Buffalo, Kitchener-Waterloo	☐66-1	☐2	____67-			☐68-1	☐2	____69-70	☐71-1	☐2	72-73	74-75	____72-75	____76-77	____78-80	____**10-11	____12-13	

*DUP 1-3, 4-3
DUP 5-9

**DUP 1-3, 4-4
DUP 5-9

	3a) Attended in last year		3b) How many times	3c) Have subscription/ seasons tickets		3d) Went out for meal/drink/ entertainment		3e) Spent on meal/ drink/ entertainment	3f) How arrived there - Public transportation		- IF CAR - i) Gas	- IF CAR - ii) Parking	- IF PUBLIC TRANSPORTATION - Fare	3g) Amount spent on... i) Food/drink	ii) Hotel/motel	iii) Other event costs (souvenirs, programs etc.)	iv) Other
	Yes	No		Yes	No	Yes	No		Car								
.A musical concert of any type in Toronto, Buffalo, Niagara Falls or Kitchener-Waterloo	☐14-1	☐2	15-			☐16-1	☐2	17-18	☐19-1	☐2	20-21	22-23	20-23	24-25	26-28	29-30	31-32
.Any other event held at CNE Stadium (specify)	☐33-1	☐2	34-			☐35-1	☐2	36-37	☐38-1	☐2	39-40	41-42	39-42	43-44	45-47	48-49	50-51
.Any other event held at Maple Leaf Gardens (specify)	☐52-1	☐2	53-			☐54-1	☐2	55-56	☐57-1	☐2	58-59	60-61	58-61	62-63	64-66	67-68	69-70
.Any other event held at Buffalo Memorial Auditorium/Niagara Falls Convention Centre (specify)	☐71-1	☐2	72-			☐73-1	☐2	74-75	☐76-1	☐2	77-78	79-80	77-80	*10-11	12-14	15-16	17-18
.Any other event at Kitchener-Waterloo arena (specify)	☐19-1	☐2	20-			☐21-1	☐2	22-23	☐24-1	☐2	25-26	27-28	25-28	29-30	31-33	34-35	36-37

* DUP 1-3, 4-5
DUP 5-9

S
1

4a. Now, suppose Hamilton had a facility that would allow each of the following events to be held in Hamilton. Assuming the costs associated with each one are as I read them to you, please answer the following questions:

a) If Hamilton had a National Hockey League team and 45 National Hockey League games were held a year in Hamilton, would you buy a season ticket at $450 for the season?

Yes ☐38-1 No ☐2

b) If Hamilton had a National Hockey League team and 45 National Hockey League games were held a year in Hamilton, how many games would you attend at $10 per seat per game?

_____39-40 None ☐41-9

c) If Hamilton had a Junior Hockey League team and 45 Junior Hockey League games were held a year in Hamilton, would you buy a season ticket at $180 for the season?

Yes ☐42-1 No ☐2

d) If Hamilton had a Junior Hockey League team and 45 Junior Hockey League games were held a year in Hamilton, how many games would you attend at $4 per seat per game?

_____43-44 None ☐45-9

e) If 20 pro wrestling events were held in Hamilton a year, how many would you attend at $5.50 a seat?

_____46-47 None ☐48-9

f) If 5 closed circuit soccer games were shown a year in Hamilton, how many would you attend at $15 a seat per game?

_____50- None ☐51-9

g) If 10 NBA pro basketball games were held a year in Hamilton, how many would you attend at $9.50 a seat per game?

_____52- None ☐53-9

h) If 20 professional summer lacrosse matches were held in Hamilton a year, how many would you attend at $4.00 a seat per match?

_____54-55 None ☐56-9

i) If 20 professional winter lacrosse matches were held in Hamilton a year, how many would you attend at $4.00 a seat per match?

_____57-58 None ☐59-9

j) If 10 roller derby events were held in Hamilton a year, how many would you attend at $4.00 a seat per event?

_____60- None ☐61-9

k) If 9 indoor soccer games were held in Hamilton a year, how many would you attend at $5 a seat per game?

_____62- None ☐63-9

l) If 3 closed circuit boxing events were shown in Hamilton a year, how many would you attend at $17.50 a seat per event?

_____64- None ☐65-9

m) If 3 indoor tennis matches were held in Hamilton a year, how many would you attend at $10 a seat per match?

_____66- None ☐67-9

n) If 6 closed circuit soccer games were shown in Hamilton a year, how many would you attend at $15 a seat per game?

_____68- None ☐69-9

o) If 24 ice shows like the Ice Capades were held in Hamilton a year, how many would you attend at $7 a seat per show?

_____70-71 None ☐72-9

p) If 7 circuses were held in Hamilton a year, how many would you attend at $6 a seat per circus?

_____73- None ☐74-9

q) If 20 musical concerts covering all types of music were held in Hamilton a year, how many concerts would you attend at $10 a seat per concert?

_____75-76 None ☐77-9

*DUP 1-3, 4-6
DUP 5-9

r) If 10 exhibitions like the Home Show, Boat Show, etc. were held in Hamilton a year, how many would you attend at $3.50 each?

_____78- None ☐79-9

s) If the Harlem Globetrotters came to Hamilton once a year, would you attend at $6.50 a seat?

Yes ☐80-1 No ☐2

t) If 2 ethnic interest shows were held in Hamilton a year, how many would you attend at $12.00 a show?

_____*10- None ☐11-9 12 = ✗

5. If Hamilton had a facility that would allow each of the following events to be held in Hamilton, would you:

i) also go to another city such as Toronto, Buffalo, Niagara Falls, Kitchener-Waterloo to see it, or would you only attend such events in Hamilton or would you not attend at all in Hamilton or elsewhere?

ii) FOR EACH ONE THAT RESPONDENT WOULD GO TO ANOTHER CITY TO SEE, ASK -- How many times a year would you go to another city to see_____?

	i			ii
	Would go to another city	Would only go in Hamilton	Would not attend anywhere	Number of times would go to another city
National Hockey League Games	☐13-1	☐2	☐3	_____14-15
Junior Hockey League Games	☐16-1	☐2	☐3	_____17-18
Pro Wrestling	☐19-1	☐2	☐3	_____20-21
Closed circuit soccer	☐22-1	☐2	☐3	_____23-
NBA Basketball	☐24-1	☐2	☐3	_____25-
Professional Summer Lacrosse	☐26-1	☐2	☐3	_____27-
Professional Winter Lacrosse	☐28-1	☐2	☐3	_____29-
Roller Derby	☐30-1	☐2	☐3	_____31-
Indoor Soccer	☐32-1	☐2	☐3	_____33-
Closed Circuit Boxing	☐34-1	☐2	☐3	_____35-
Indoor tennis	☐36-1	☐2	☐3	_____37-
Ice Shows	☐ 38-1	☐2	☐3	_____ 39-
Circuses	☐ 40-1	☐2	☐3	_____ 41-
Musical Concerts	☐ 42-1	☐2	☐3	_____ 43-
Exhibitions	☐ 44-1	☐2	☐3	_____ 45-
Harlem Globetrotters	☐ 46-1	☐2	☐3	_____ 47-
Ethnic interest shows	☐ 48-1	☐2	☐3	_____ 49-

6. Now, in order to classify our data, we need some basic information about you. This is for statistical purposes only.

Do you live in ...

A house	☐ 50-1
An apartment	☐ 2
A townhouse	☐ 3
Other_____ (specify)	☐ 4

7. Would you consider yourself to be ...

An avid sports fan	☐ 51-1
An average sports fan	☐ 2
Not a sports fan at all	☐ 3

8. In which of the following categories would your total household income fall? (READ LIST: CHECK ONE ONLY)

Less than $15,000	☐ 52-1
$15,000 - $24,999	☐ 2
$25,000 - $34,999	☐ 3
$35,000 or over	☐ 4
(DO NOT READ) Refused	☐ 5

9. And finally, which of the following most closely defines where you live ... (READ LIST)

Ancaster	☐ 53-Y	Kitchener	☐ 6
Dundas	☐ X	Cambridge	☐ 7
Burlington	☐ 0	Waterloo	☐ 8
Grimsby	☐ 1	St. Catherines	☐ 9
Hamilton	☐ 2	Brantford	☐ 54-Y
Stoney Creek	☐ 3	Niagara Falls	☐ X
Oakville	☐ 4	Welland	☐ 0
Guelph	☐ 5	Other	☐ 1

RESPONDENT'S NAME_____

RESPONDENT'S ADDRESS_____

RESPONDENT'S TELEPHONE#_____

INTERVIEWER_____ DATE_____

TIME COMPLETED_____

STADIUM/ARENA FEASIBILITY STUDY

APPENDIX 2B

MARKET DEMAND FOR TRADE CENTRE/ARENA AND STADIUM

C O N F I D E N T I A L

This Appendix consists primarily of estimates of future potential for sporting and cultural events and exhibitions provided by promotors. Much of this information is confidential, and so this report has been submitted to the City under separate cover.

STADIUM/ARENA FEASIBILITY STUDY

APPENDIX 2C

FINANCIAL PROJECTION OF FACILITY OPERATIONS

PHASE 2: APPENDIX 2C

FINANCIAL PROJECTION OF FACILITY OPERATIONS

INTRODUCTION

The Phase 2 analysis further develops the study of the operating structures of comparable facilities undertaken in Phase 1. The Phase 1 comparison of stadiums and arenas suggested a variety of options for development procedures, owners/operator arrangements, and financing alternatives. In Phase 2 these options have been narrowed to provide the relevant parameters for operating costs and procedures for the types of facilities under investigation. Appendix C analyses four major facility scenarios identified for the feasibility analysis:

- a new 15,000 seat arena
- an arena/trade centre complex operating in conjunction with the Hamilton Convention Centre
- an 8,500 seat expansion for Ivor Wynne Stadium
- a new 42,500 seat football stadium.

This appendix will proceed by analysing the operational parameters under each of the four facility scenarios identified.

SECTION 1 - THE NEW ARENA

For the purposes of the financial analysis, a $38.8 million arena with 15,000 seats has been assumed. The $38.8 million capital investment includes both structural costs and the investment necessary for the acquisition of equipment.

In terms of operations two scenarios have been identified; firstly, a city owned and operated arena; secondly, a city owned facility operated

EXHIBIT 2C1

ARENA FIXED OPERATING EXPENSES
WITH OUTSIDE CONCESSION OPERATIONS

ADMINISTRATION			
Salaries and Wages (including benefits)			
Manager	$55,000		
Controller/Office Manager	30,000		
Promotion/Public Relations Manager	30,000		
Secretarial/Clerical (3 @ average of $12,000)	45,000		
		$160,000	
Promotion, advertising, travel, entertainment		100,000	
Professional services		30,000	
Insurance		100,000	
Office supplies, printing, sundry		30,000	
			$420,000
BOX OFFICE			
Salaries and Wages (including benefits)			
Manager	$20,000		
Assistant/Secretary	17,000		37,000
MAINTENANCE, REPAIRS, SUPPLIES			
Salaries and Wages (including benefits)			
Chief Engineer	$20,000		
Building Manager	20,000		
Janitor/Custodian	16,000		
Permanent Labour (3 @ average of $14,000)	42,000		
		$98,000	
External services		75,000	
Security (3)		45,000	
Equipment rental, maintenance, repairs, Supplies, uniform cleaning, etc.		50,000	
			268,000
UTILITIES			200,000
OPERATING EXPENSES BEFORE TAXES			$ 925,000
TAXES			
Realty			$1,228,000
Business			491,000
TOTAL OPERATING EXPENSES AFTER TAXES			$2,644,000

Sources: Hamilton City Clerk; Assessment Office; Interviews with facility manager; 1980 Industry Profile Survey

privately. In both scenarios operating revenues and expenses are assumed to be basically the same; however, in the case of the private operation there are additional tax considerations which will be discussed in more detail below. Again, in both scenarios, the staffing structures and management procedures are the same, with the only difference being that in the private operation, management is autonomous while in the city operation, hired management is responsible to a committee or board appointed by the City of Hamilton.

OPERATIONAL ANALYSIS

Operational Expenses

The evaluation of operational expenses assesses only those costs which may be considered as fixed, that is to say, full time staff, professional and other external services, insurance, supplies, maintenance and repairs expenses, and utilities. Other expenses such as the labour expense required for ticket takers, stage hands, clean-up crews, etc., are variable costs for which promotors and/or tenants will receive additional billing above the base rental rate. Such expense charges to promotors and tenants beyond the base provisions of full-time labour are common to all facility operations. As demonstrated by Exhibits 2C1 and 2C2, there are two sets of fixed operating expenses. The provision of these two sets of figures is required by the two options available for concession operations. The operation of concessions may either be contracted to an outside agency or operated internally by the arena management and its own concession staff. Exhibit 2C2 provides an evaluation of the additional costs which would be incurred by the arena for their own management of concessions.

Administration

The number and cost of administration staff has been based on an

EXHIBIT 2C2

ARENA FIXED OPERATING EXPENSES
WITH INSIDE CONCESSION OPERATION

FULL-TIME CONCESSION STAFFING

General Concession Manager	25,000
Office Manager/Controller	22,000
Supervisors (3) @ $15,000	45,000
	92,000

ARENA EXPENSES WITH INSIDE OPERATION

Expenses before taxes	925,000	(From Exhibit C1)
Concession staffing (above)	92,000	
TOTAL	1,017,000	
Expenses including taxes	2,644,000	(From Exhibit C1)
Concession staffing (above)	92,000	
TOTAL	2,736,000	

Sources: Interviews with facility managers; 1980 Industry Profile Survey

assessment of industry averages in comparable facilities and represents a forecasted estimate of the staffing expense required to operate the Hamilton facility. A liberal promotional budget has been provided in conjunction with the usage estimates from which operating revenues have been derived. The expense for professional services primarily results from the legal and auditing expenses which the facility would require. Given these assumptions, the administration expense for the new arena would amount to $420,000.

Box Office

It is estimated that only two full-time staff (a manager and his assistant) will be required for box office operations including season tickets. All additional labour expenses vary with each event and are charged out accordingly to the promotors of the particular activity. The total box office expense is thus $37,000.

Maintenance, Repairs, Supplies

Building and maintenance staff requires nine full-time employees, including a chief engineer, a building manager, a janitor/custodian, three maintenance employees, and three security guards. Again, the staffing requirements are based on industry averages and reflect the expenses that would be incurred by the type of arena in question. The expenses for external services, equipment rental, maintenance, etc., have been derived from comparable arena operations. As Exhibit 2C1 demonstrates, the total expense for maintenance, repairs, and supplies is $268,000.

Utilities

The $200,000 utility expense has been estimated through an analysis of industry averages and reflects a somewhat higher cost due to the utilization that is anticipated for the Hamilton facility.

Concession Staffing

Exhibit 2C2 indicates that five additional full-time employees will be required if the arena operates its own concessions. Part-time employees for concession operation may number up to 200 depending on the size of the event; however, for the purposes of the financial analysis, part-time labour expenses for concession operations are already considered as part of the costs taken into account in determining the concession revenue profit margins discussed in more detail below. Therefore, fixed operating expenses for concession operations totals $92,000.

Operating Expenses Before Taxes (City Operation)

In consideration of the two arena operations scenarios identified above, i.e. the City operation and the private operation, there are two pertinent fixed operating expense totals. For the City operation, realty and business taxes while being an expense, effectively comes back into the hands of the City. Therefore the pertinent figure to consider for the City arena operation is that which identifies expenses before the addition of realty and business taxes. Where the operation of concessions is contracted to an outside agency, the total operating expense before taxes amounts to $925,000 annually. Should the arena choose to operate its own concessions, these expenses will be increased by the $92,000 cost of full-time concession staffing, bringing total fixed operating expenses to $1,017,000.

Taxes

The liability for business and realty taxes has been derived from discussions with both the City Clerk and the Assessment Office of Hamilton.

For a $38.8 million arena facility, realty taxes would be approximately $1,228,000 and business taxes would be approximately 40% of that, or, $491,000.

Total Operating Expenses After Taxes

The inclusion of business and realty taxes with operating expenses brings the total for the cost of operations to $2,644,000 annually. This expense figure is the relevant operations cost if arena operations are taken over entirely by private management. In such a scenario, a private operation would retain all the revenues derived from arena operations but would be responsible to pay both business and realty taxes to the City as well as some predetermined annual rental charge. Should the private operator choose to run his own concessions, there would again be an additional expense of $92,000 bringing total fixed operating expenses to $2,736,000.

Operational Revenues

The demand for usage of the arena facility has been derived from both extensive interviews with promotors and from our discussions with the arena managers of comparable facilities and from the survey of the public. Operational revenues have been considered under three demand categories identified as high probability, medium probability, and low probability. Low operating revenue projections include all those events which have a high probability demand; medium operational revenue includes both high probability events and medium probability events; and high revenue projections include the high, medium, and low demand probabilities. In addition to the revenues that are normally derived for arena facilities through rental and concession income, there are also projections for additional revenue from the rental of corporate boxes and from promotional display advertising. The rental of corporate boxes is a lucrative and common

EXHIBIT 2C3

ARENA RENTAL REVENUE

High Probability Demand

Type	Performances	Average Attendance	Average Ticket Price	Gross Revenue	Arena Rev. @ 15% net of Amuse. Tax
NHL	40	11,000	$10.00	$4,400,000	$600,000
Pro-wrestling	20	8,000	5.50	880,000	120,000
Tennis	3	7,000	10.00	210,000	28,640
Other Ice	3	6,000	9.00	162,000	22,090
Ice Follies	12	11,000	7.00	924,000	126,000
Disney on Ice	12	11,000	7.00	924,000	126,000
Circus	7	6,000	6.00	252,000	34,360
Globe Trotters	1	15,000	6.50	97,500	13,300
Musical Concerts	20	7,000	10.00	1,400,000	190,910
TOTAL				$9,249,500	$1,261,240

Medium Probability Demand

Closed Circuit Boxing	6	7,000	$15.00	$ 630,000	$ 85,910
Roller Derby	10	4,000	6.50	260,000	35,450
Indoor Soccer	9	8,000	5.00	360,000	49,090
Pro Lacrosse (Winter)	20	5,000	4.00	400,000	54,550
Ethnic Shows	2	7,000	12.00	168,000	22,910
TOTAL				$1,818,000	$247,910

Low Probability Demand

Pro-Basketball	10	7,500	$ 9.50	$ 712,500	$ 97,160
Closed Circuit Soccer	5	8,500	12.00	570,000	69,550
Lacrosse (Summer)	20	3,500	4.00	280,000	38,180
TOTAL				$1,502,500	$204,890

Arena Rental Revenue

High	1,714,000
Medium	1,509,000
Low	1,261,000

Sources: Interviews with Toronto and Hamilton Promoters; Interviews with facility managers; 1980 Industry Profile Survey

practice in newly designed facilities. Display advertising income is an annual revenue increment generated through displays inside the arena and varying with the size and complexity of the scoreboard system. There has been no consideration of parking revenues, since any parking structures will be independent of arena management. However, the economic impact of parking revenues in the downtown area will be considered among other benefits derived from the facility but not particular to its own operational income.

Arena Rental Revenue

Exhibit 2C3 identifies rental revenue by event type and demand category. A facility rental charge of 15% of revenues net of amusement tax has been assumed in accordance with industry averages. While it is sometimes the case that rental rates are in excess of 15%, such rates usually reflect an additional charge for the facilities provision of event support staff such as ticket takers, stage hands, etc. As well, such rental rates are usually quoted against a minimum base charge, such as $2,500; however, such a base charge is usually provided for non-profit or charitable organizations and is not relevant to the revenues and events identified in this analysis. It should be noted that the gross revenue figures include the provincial retail sales tax of 10% which is not subject to rental charges and therefore has been removed in the calculation of arena revenue.

As is demonstrated in Exhibit 2C3, in the category of high probability demand, the primary single event revenue generator is the NHL home team, bringing $600,000 of revenue annually. Other major events such as Ice Follies and Disney on Ice are anticipated to generate $126,000 of income annually. The total revenue for the high probability demand category is approximately $1,261,000. The medium arena operations revenue combines high and medium

EXHIBIT 204

ARENA CONCESSION REVENUE

High Probability Demand

Type	Attendance	$/Capita	Gross Concession Rev.	Arena Rev. @ 30%	Arena Rev. @ 50%
NHL	440,000	1.00	440,000	132,000	220,000
Pro-wrestling	160,000	.80	128,000	38,400	64,000
Tennis	21,000	.80	16,800	5,040	8,400
Other Ice	18,000	.65	11,700	3,510	5,850
Ice Follies	132,000	.70	92,400	27,720	46,200
Disney on Ice	132,000	.70	92,400	27,720	46,200
Circue	42,000	.70	29,400	8,820	14,700
Globe Trotters	15,000	.70	10,500	3,150	5,250
Musical Concerts	140,000	.65	91,000	27,300	45,500
TOTAL			912,200	273,660	456,100

Medium Probability Demand

Closed Circuit Boxing	42,000	1.00	42,000	12,600	21,000
Roller Derby	40,000	.70	28,000	8,400	14,000
Indoor Soccer	72,000	.70	50,400	15,120	25,200
Pro Lacrosse (Winter)	100,000	.70	70,000	21,000	35,000
Ethnic Shows	14,000	.65	9,100	2,730	4,550
TOTAL			199,500	59,850	99,750

Low Probability Demand

Pro Baseball	75,000	1.00	75,000	22,500	37,500
Closed Circuit Soccer	42,500	.80	34,000	10,200	17,000
Lacrosse (Summer)	70,000	.70	49,000	14,700	24,500
TOTAL			158,000	47,400	79,000

Arena Revenue With Inside Concession Operation (50%)

High	580,000
Medium	556,000
Low	456,000

Arena Revenue With Outside Concession Operation (30%)

High	381,000
Medium	334,000
Low	274,000

Source: Interviews with promoters and facility managers; 1980 Industry Profile Survey

probability of demand for a total of $1,509,000. Low probability demand would generate in the order to $205,000 annually bringing the highest revenue estimate to $1,714,000.

Concession Revenues

As Exhibit 2C4 demonstrates concessions revenues have been identified both by event and demand category. As is the practice in the industry, a dollar expenditure per event spectator has been assumed based on industry averages. The two concession scenarios identified above in the discussion of operating expenses provide two potential profit margins. Arena revenues generated at 30% of gross concession revenues reflect the expected income that would be obtained if an outside agency managed concession operations. While it is not a common practice, the operation of concessions by the arena's own management offers many economies and great potential for supplementary concession revenue. Although owner-operated concessions are a further load for management, various facilities such as Hartford Civic Centre have demonstrated net arena revenues in excess of 50%. Given these foregoing assumptions, arena revenues in the high probability event demand category would be approximately $274,000 if operated by an outside agency and $456,000 if operated by the facility's own management. These two concession revenue figures reflect the low concession revenue projection and when supplemented by income from the medium event demand category become $334,000 and $556,000 respectively. When added to the concession revenue generated from those events in the low probability demand arena revenues can reach highs of $381,000 and $580,000 annually.

Corporate Boxes

Exhibit 2C5 estimates the annual revenue from corporate boxes to be $25,000. This income projection is based on the existence of 10 corporate

EXHIBIT 2C5

ARENA OPERATING REVENUE

	HIGH		MEDIUM		LOW	
Rental	1,714,000		1,509,000		1,261,000	
Corporate Boxes	25,000		25,000		25,000	
Display Advertising	100,000		100,000		100,000	
Concessions	outside operation	inside operation	outside operation	inside operation	outside operation	inside operation
	381,000	580,000	334,000	556,000	274,000	456,000
TOTAL	2,220,000	2,419,000	1,968,000	2,190,000	1,660,000	1,842,000

EXHIBIT 2C6

ARENA OPERATING PROFIT/LOSS

CITY OWNED AND OPERATED

	HIGH		MEDIUM		LOW	
	outside concession	inside concession	outside concession	inside concession	outside concession	inside concession
Expenses	925,000	1,017,000	925,000	1,017,000	925,000	1,017,000
Revenues	2,220,000	2,419,000	1,968,000	2,190,000	1,660,000	1,842,000
Profit/(Loss)	1,295,000	1,402,000	1,043,000	1,173,000	735,000	825,000

CITY OWNED AND PRIVATE OPERATION*

	HIGH		MEDIUM		LOW	
	outside concession	inside concession	outside concession	inside concession	outside concession	inside concession
Expenses	2,644,000	2,736,000	2,644,000	2,736,000	2,644,000	2,736,000
Revenues	2,220,000	2,419,000	1,968,000	2,190,000	1,660,000	1,842,000
Profit/(Loss)	(424,000)	(317,000)	(676,000)	(546,000)	(984,000)	(894,000)

* Reflects revenues to the operator; City revenue is assumed to be derived solely through property and business taxes.

boxes rented out at $2,500 per year. The rental of corporate boxes is relatively new to the industry, but has proven very successful. The $25,000 annual figure represents an estimate based on the investigation of the corporate box rate structure and reflects the Hamilton patronage potential from trade and industry. It is important to note that investigations of several facilities indicated a range in rental rates for corporate boxes from $2,500 to $25,000 per year. The higher revenues from this source reflects the U.S. market where entertainment expenses are deductible from corporate income.

Display Advertising

While income derived from advertising displays varies considerably from facility to facility a conservative estimate for such income is a reasonable revenue assumption. Such facilities as the Hartford Civic Centre generate up to $300,000 annually for their display advertising. Such advertising incorporates the use of display panels on the ice cleaning machine and on the various scoreboard displays located throughout the facility. For the Hamilton Arena a display advertising income of $100,000 has been projected.

Summary

Exhibit 2C6 shows the total revenue projections from all sources of income including rents, concessions, corporate box rental, and display advertising. Low revenue projections are $1,660,000 or $1,842,000 annually depending on the type of concession operation; medium operating revenue would be $1,968,000 or $2,190,000; and high revenue estimates would be $2,220,000 or $2,419,000.

Arena Operating Profit/Loss

City Owned and Operated Arena

As stated above in the scenario which analyzes an arena owned and operated by the municipality, business and realty taxes effectively cancelled out since the City pays them out as an arena expense but collects them in its government capacity. Consequently, in terms of arena operations profits are significantly higher than in the private operation scenario. Again dependent on the type of concession operation, profit levels will differ, with higher margins for the operation of its own concession and lower if the concessions are run by an outside agency. In all cases for a City owned and operated facility there will be an effective operating profit before considering the requirements for debt servicing. As Exhibit 2C6 indicates the low profit is $735,000 and the high is $1,402,000. In the medium range profits which include inside concession operations would be approximately $1,173,000, while with outside concessions operations profits annually would be $1,043,000.

Privately Operated Arena

The addition of business and realty taxes to the expenses of a private operation significantly alters the profit/loss projections. With either type of concession operation in the range of revenue estimates a loss is projected. In the medium range with outside concession operations there is a loss of $676,000 and with arena-operated concessions a loss of $546,000.

SECTION 2: JOINT ARENA/TRADE/CONVENTION CENTRE

In Section 1 of this appendix the analysis of arena operations was based on the assumption that the arena operated independently of other facilities. However, given the locational analysis undertaken in this study there exists great potential for further revenue and expense savings if the new facility is designed as a multi use arena/trade centre located near and operated in conjunction with the new Hamilton Convention Centre. Potential ultimately exists for a joint operation under a common management which would utilize the complementary features of the two facilities. It should be emphasized that at this point it is difficult to determine an estimate of the operating revenues and expenses of such a hypothetical operation, particularly since the Hamilton Convention Centre itself has not had a full operational year and has not directed its marketing and sales activities towards the potential of a joint facility.

Consequently, the financial analysis of a joint operation has been restricted to that information which can be reasonably determined from the industry analysis and interviews which this study has undertaken. Although some of the benefits would accrue to the Hamilton Convention Centre these would be as a direct consequence of the increased total space available as a result of construction of the arena/trade centre. Therefore for the financial analysis of the joint operation the focus has been placed on the arena in two major areas: firstly, those savings in staffing from which the arena would benefit under a joint management operation; and secondly, the additional profits to the convention centre plus arena/trade/exhibition complex which would be derived from exhibitions and shows which would occur on these premises.

EXHIBIT 2C7

ARENA/CONVENTION CENTRE JOINT STAFF SAVINGS

ORIGINAL ARENA STAFFING		ARENA STAFFING FOR JOINT OPERATION*	
Manager	$ 55,000	Manager	$ 30,000
Controller	30,000	Controller	15,000
Promotion Manager	30,000	Secretarial (2)	30,000
Secretarial (3)	45,000		
Box Office Manager	20,000	Box Office Manager	20,000
Assistant	17,000	Assistant	17,000
Engineer	20,000	Engineer	20,000
Building Manager	20,000	Building Manager	20,000
Janitor	16,000		
Labour (3)	42,000		
Security (3)	45,000	Security (3)	45,000
	$340,000		$197,000

JOINT STAFF SAVING: $143,000

*Source: Manager, Hamilton Convention Centre;
1980 Industry Profile Survey

Arena/Convention Centre
Joint Staff Savings

Under a joint operation there would be considerable savings in the staff that would be required for the new arena. Exhibit 2C7 demonstrates both the original staffing that was assumed for the estimation of expenses in Section 1 of Appendix C and the arena staffing which would be required under a joint operation.

For administration staffing it is assumed that the General Manager for the joint complex would be that person overseeing the Convention Centre activities. Consequently, there would be a sub-manager for the operation of the arena; however this manager would not require the same salary level as that necessitated by a General Manager of an independent arena operation. The salary saving for the manager would be therefore $25,000. For the controller/office manager function, the arena would not require its own independent personnel; however, some portion of the controlling cost originating from the central management of the joint facility would be aportioned to the arena. It is anticipated that this expense would be approximately $15,000 a saving from the original controller of the independent arena of $15,000. Additionally, secretarial requirements would be reduced for another saving of $15,000. Since box office operations for the arena would be the same and since the Convention Centre has no extensive box office requirements, it is assumed that the box office expenses in the joint operation would remain the same. Maintenance staffing would still require an engineer and a building manager, however there would be no requirement for maintenance sub-labour since the currently anticipated staff of the Convention Centre

EXHIBIT 2C8

ADDITIONAL ARENA REVENUES WITH JOINT OPERATION

RENTAL

Exhibition	Exhibition Days	Revenue @ $.06/sq.ft.	Move In/ Out Days	Revenue @ $.03/sq.ft.
Better Living	3	10,800	2	3,600
Data Processing	4	14,400	3	5,400
Auto Show	3	10,800	2	3,600
Gift Show	5	18,000	3	5,400
Career Show	6	21,600	2	3,600
Home Show	5	18,000	3	5,400
Computer Show	6	21,600	3	5,400
Sport/Leisure Show	3	10,800	2	3,600
TOTAL	35	126,000	20	36,000

CONCESSIONS

Exhibition	Exhibition Days	Attendance per Day	Total Attendance	$/Cap.	Gross Revenues	Revenue @ 30%	Revenue @ 50%
Better Living	3	15,000	45,000	.8	36,000	10,800	18,000
Data Processing	4	10,000	40,000	.8	32,000	9,600	16,000
Auto Show	3	15,000	45,000	.8	36,000	10,800	18,000
Gift Show	5	10,000	50,000	.8	40,000	12,000	20,000
Career Show	6	10,000	60,000	.8	48,000	14,400	24,000
Home Show	5	15,000	75,000	.8	60,000	18,000	30,000
Computer Show	6	10,000	60,000	.8	48,000	14,400	24,000
Sport/Leisure Show	3	10,000	30,000	.8	24,000	7,200	12,000
TOTAL	35		405,000		324,000	97,200	162,000

Source: Manager Hamilton Convention Centre, 1980 Industry Profile Survey

would handle the required functions. Although the new facility would be able to use the TV monitoring system that currently exists in the Convention Centre, it is anticipated that the guard requirements for the arena/trade centre would remain the same.

It should be noted that the staff savings for the arena will in no way put an additional burden on the Convention Centre staffing as it is anticipated. Thus, if the arena/trade centre and the Convention Centre were to operate under a joint management and staffing function there would be a savings of approximately $143,000 per year.

ADDITIONAL ARENA/TRADE CENTRE OPERATIONS

Additional Arena/Trade Centre Revenues

The assessment of additional arena/trade centre revenues under the scenario of a joint management operation is based on those shows which are currently booked for Hamilton Place Convention Centre but which would be more appropriately accommodated in the arena facility. It should be understood that the shows which would move from the Convention Centre to the arena would not impinge on Convention Centre revenues, since the Convention Centre would be free to book additional conventions and exhibits that would be more appropriately suited to their facility. Exhibit 2C8 identifies those exhibits and shows which would best be accommodated by the arena. Such shows require approximately 60,000 square feet of space which is the current capacity of the Convention Centre but which could be more adequately accommodated by the arena floor assuming the use of telescopic seating identified in the design analysis in this study. It should be noted that

while the analysis discussed here is based on a rental of 60,000 square feet, the release of space from the Convention Centre would allow the use of more space for additional exhibits and meetings, and hence would provide additional revenue. However, since it is difficult to estimate what such exhibits could or would require in terms of additional space, the analysis proceeds under the assumption of a demand for 60,000 square feet, which if anything is conservative.

Rental

Rental revenues derived from the exhibitions and shows identified on Exhibit 2C8 are determined by two rates. For those days which the exhibitors are displaying their merchandise there is a rental charge of .06¢ per square foot. On those days required by the particular exhibitions in question for move-in, move-out and set-up the rental charge is reduced by 50% and becomes .03¢ per square foot. Consequently, the anticipated rental revenue from exhibitions and shows is $36,000 for move-in/out days and $126,000 for exhibition days, for a total of $152,000.

In consideration of the demand for exhibition space for the arena under the joint operation, there would be potential for more exhibition income dependent on the availability of event days at the arena. The exhibitions and shows identified herein represent confirmed demand and could be supplemented by other events. However, given the arena useage identified in Section 1 of this appendix the high revenue category could accommodate very little more in terms of exhibitions and shows because of the restriction provided by the number of events already anticipated in

EXHIBIT 2C9

EXHIBITION EXPENSES

EXHIBITION DAYS

EXHIBITION	DAYS	CLEANING 2 @ $4.5/hr. for 8 hrs.
Better Living	3	216
Data Processing	4	288
Auto Show	3	216
Gift Show	5	360
Career Show	6	432
Home Show	5	360
Computer Show	6	432
Sport/Leisure Show	3	216
TOTAL LABOUR	35	2,520

MOVE IN/OUT DAYS

EXHIBITION	DAYS	LOADING DOCK 2 @ $5/hr for 12 hrs.
Better Living	2	240
Data Processing	3	360
Auto Show	2	240
Gift Show	3	360
Career Show	2	240
Home Show	3	360
Computer Show	3	240
Sport/Leisure Show	2	360
TOTAL LABOUR	20	2,400

TOTAL EXPENSES: $4,920

Source: Manager, Hamilton Convention Centre.

that scenario. Other events and shows could supplement the arena income identified in Section 1, but only in the low and medium scenarios which have additional available event days.

Concessions

The exhibitions identified in Exhibit 2C8 are public shows, that is to say, shows which depend not only on trade participation but as well on public interest and attendance. During such exhibitions concession operations would continue in accordance with the normal arena events and therefore further income would be derived. Attendance figures for these shows are based on past industry experience and may be considered as averages. From discussions with convention managers and analysis of various industry profiles per capita expenditures are approximately .80¢ per person for public exhibitions. As in the arena analysis the determination of facility concession revenue is investigated under two scenarios, namely, an outside agency concession operation and a facility concession operation. Revenues from concessions therefore are estimated at approximately $97,000 with an outside agency and $162,000 if the facility operates its own concessions.

Additional Arena/Trade Centre Expenses

Since for the joint operation full-time staffing requirements have already been anticipated, the additional variable expenses for particular exhibitions are minimal. Exhibit 2C9 outlines the additional costs that would be assumed by the arena/trade centre for the particular exhibitions in question. There are two areas of additional costs identified: firstly those costs for

EXHIBIT 2C10

SUMMARY OF ARENA/TRADE AND CONVENTION CENTRE JOINT OPERATION*

REVENUE WITH OUTSIDE CONCESSION OPERATION

REVENUE		
Rental	$162,000	
Concessions	97,000	$259,000
EXPENSES		
Labour		5,000
NET INCOME		$254,000

REVENUE WITH INSIDE CONCESSION OPERATION

REVENUE		
Rental	$162,000	
Concessions	162,000	$324,000
EXPENSES		
Labour		5,000
NET INCOME		$319,000

STAFF EXPENSE SAVING: $143,000

PROFIT (LOSS) SUMMARY

	HIGH		MEDIUM		LOW	
	Outside Concession	Inside Concession	Outside Concession	Inside Concession	Outside Concession	Inside Concession
CITY OWNED AND OPERATED	1,692,000	1,864,000	1,440,000	1,635,000	1,132,000	1,287,000
CITY OWNED AND PRIVATE OPERATION	(27,000)	145,000	(279,000)	(84,000)	(587,000)	(432,000)

* IBI Estimates

on-going cleaning of the exhibition floor during the days that exhibitors are displaying their merchandise; and secondly, those costs assumed for the provision of loading dock attendance during the days where exhibitions are moving in and moving out. It is anticipated for the cleaning requirements on exhibition days that two additional staff will be required at approximately $4.50 an hour for eight hours, bringing the total labour for exhibition days to approximately $2,500. For move-in and move-out days there would be a requirement of two loading dock personnel at approximately $5.00 for 12 hours per day. The labour expense therefore on the move-in/out days would be again approximately $2,500, bringing the total additional exhibition expense to approximately $5,000.

Summary of Arena/Trade Centre Joint Operation

Exhibit 2C10 demonstrates the net income which could be anticipated by the arena if it operated in conjunction with Hamilton Convention Centre. With total revenues from rental and concession income (under the outside concession operation option) and expenses of $5,000 the net income would be $254,000 annually. With an inside concession operation the concession revenue would increase to $162,000 bringing total revenues to $324,000. Since the expenses for concession operation for an inside operation are already built in to the profit margin from which the total concession revenue is derived, the expenses for exhibition activities would remain the same at $5,000. Consequently, net income for the arena with an inside concession operation would be approximately $319,000.

Conclusion: Joint Arena/Trade and Convention Centre Operation

The benefits derived from the arena alone under consideration of a joint operation with the Convention Centre are represented by the net income which could be derived from additional events and from the savings for joint staff expenses. With a joint staff saving of approximately $143,000, the arena with an outside concession operation could expect benefits of approximately $397,000 and with an inside operation of approximately $462,000. As stated above these benefits could be supplemented by additional exhibition income depending on the availability of the arena space.

In addition to the income that the arena would derive from a joint operation, some mention should be made of what could be anticipated in other benefits for the entire operation even though a specific dollar value cannot at this point be determined. As mentioned above the exhibitions identified for purposes of this analysis are only those which are currently confirmed at the Hamilton Convention Centre. In many cases some of the exhibitions have reduced their square footage requirements in order that they could be accommodated comfortably in the Hamilton Convention Centre. With the addition of the arena/trade centre space the gross square footage available to the joint operation increases considerably and consequently many of the identified exhibitions would fill the expanded operation and provide additional income. In addition to these specific shows larger industrial shows could be accommodated in this expanded facility which

would again augment revenue sources. In addition to rental income, the joint facility would have the flexibility to offer more services such as the concession operations of the arena and expanded banquet capability. As well, the kitchen facilities of the Convention Centre could be utilized for the preparation of concession food further increasing the profit margins identified for concession revenues.

Given these further considerations, the benefits derived from the joint operation would be in excess of the specific dollar value identified for the arena benefits alone. The impact on profit and loss is summarized in Exhibit 2C10. Furthermore, a joint operation would significantly increase utilization and hence, add to the economic impact which would benefit the City of Hamilton.

EXHIBIT 2C11

EXPANDED IVOR WYNNE OPERATING EXPENSES

ADMINISTRATION		
Salaries and Benefits	$30,000	
Promotion	5,000	
Professional Services	30,000	
Insurance	12,000	
Office supplies, printing, sundry	2,000	$79,000
MAINTENANCE, REPAIRS, SUPPLIES		
Salaries and Benefits	$140,000	
External Services	20,000	
Security	5,000	
Supplies	15,000	
Maintenance	110,000	290,000
PARKING		
Net Loss on Rental of Spaces		20,000
UTILITIES	$65,000	65,000
OPERATING EXPENSES BEFORE TAXES		$454,000
TAXES		
Realty		$484,000
Business		193,000
TOTAL OPERATING EXPENSES AFTER TAXES		$1,111,000

Sources: City of Hamilton Parks and Recreation; City Clerk; Assessment Office; Dalton Insurance (Hamilton); 1980 Industry Profile Survey.

SECTION 3: EXPANDED IVOR WYNNE STADIUM

Following the Phase 1 analysis, the scenario for an expanded Ivor Wynne Stadium is based on an addition of 8,500 seats at a cost of $10,000,000 to $22,000,000. It is assumed that managerial procedures and contractual arrangements will be the same as those currently existing at Ivor Wynne. Consequently, the financial calculations for operations are based on the revenues and expenditures currently existing at Ivor Wynne which have been incremented accordingly for the seat expansion.

OPERATIONAL ANALYSIS

Operational Expenses

The evaluation of operational expenses, as mentioned, is based on existing Ivor Wynne procedures and therefore assumes Department of Parks and Recreation control at an appropriate cost incremented to accommodate the 8,500 seat expansion.

Administration

In addition to the increased labour costs for the operation of the expanded facility, there will be a further expense for the insurance on the expanded seating. These figures (shown in Exhibit 2C11) are based on discussions with the appropriate bodies of the City of Hamilton and bring the total operating expenses for administration to $79,000 annually.

Maintenance, Repairs, Supplies

Again the expenses of this category reflect a cost increment to the current expenses existing at Ivor Wynne Stadium. Salaries,

external services, and supplies, have been incremented appropriately to accommodate the expanded operation. It is assumed that the addition of new seats will not significantly change the amounts of full-time security required to monitor the facility and therefore the security expense has remained approximately the same. Consequently, as shown in Exhibit 2C11, the total for maintenance, repairs and supplies will reach approximately $290,000 per year.

Parking

Allowance is made for a net loss of $5.00 per space on rental of 4,000 spaces at the Greater Hamilton Shopping Centre, from which a bus shuttle would operate. Were additional events to be permitted this net loss might be eliminated, or even turned into a profit.

Utilities

In the expanded facility utility expense should reach approximately $65,000 per year. It is assumed that this utility expense, apart from the normally understood escalation of annual expenses, remains approximately the same as it now exists at Ivor Wynne.

Operating Expenses Before Taxes

The pertinent figure to be considered for operating expenses is that total calculated before taxes. As demonstrated in Exhibit 2C11, without realty and business taxes the total operating expenses for an expanded Ivor Wynne Stadium would be approximately $434,000 per year. Again there has been no consideration of expenses for box office operations since it is assumed that this responsibility and its attending costs will continue under the jurisdiction of the Hamilton Tiger Cats.

EXHIBIT 2C12

EXPANDED IVOR WYNNE OPERATING REVENUES

RENTAL	HIGH	MEDIUM	LOW	EXISTING
Ti-Cats	572,700	491,000	409,000	327,300
Schools	5,500	5,500	5,500	5,500
Soccer	12,000	12,000	12,000	12,000
Football	6,000	6,000	6,000	6,000
Events	36,800	36,800	36,800	36,800
TOTAL RENTAL REVENUES	633,000	551,300	469,300	387,600

CONCESSIONS	HIGH	MEDIUM	LOW	EXISTING
Ti-Cats	52,000	44,300	39,350	34,400
Events	2,145	2,145	2,145	2,145
TOTAL CONCESSION REVENUES	54,145	46,445	41,495	36,545

TOTAL OPERATING REVENUE	687,145	597,745	510,795	424,145

Sources: City of Hamilton Parks and Recreation;
IBI Estimates

Operational Revenues

The analysis of operational revenues for the expanded football facility investigates three scenarios identified as high, medium and low (Exhibit 2C12). In the high scenario an average game attendance of 40,000 has been assumed, in the medium 35,000, and in the low 30,000 to provide a basis of estimating incremental impact on the existing (estimated 1980/81) scenario which assumes an average attendance of 25,000 has also been generated. Other event income from schools, soccer leagues, and local football leagues is assumed to continue at the rate which has remained steady at Ivor Wynne since 1975. Furthermore, the analyses assume the addition of one major concert event such as the Rush concert held at Ivor Wynne this year.

Rental

Rental income from Tiger Cat games has been evaluated based on the attendance figures assumed above and an average ticket price of $10 per game. Additionally, it has been assumed that there will be eight regular season games and one pre-season game and again that the stadium revenue will be based on an income net of amusement tax at a rate of 15% plus an additional 5% for all game attendance over 20,000. The rental income anticipated therefore will range from approximately $469,000 under the low attendance assumption, $551,000 under the medium assumption, and $633,000 under the high (Exhibit 2C12).

Concessions

The concession revenue is again derived based on the contracts currently existing between the city and the concession agency at Ivor Wynne. It is assumed that concession revenue will be derived primarily from the Tiger Cat football games and from the one concert that will be held in the facility each year. Other concession revenue from minor

EXHIBIT 2C13

EXPANDED IVOR WYNNE OPERATING PROFIT/LOSS*

	HIGH	MEDIUM	LOW	EXISTING
Expenses	454,000	454,000	454,000	454,000
Revenues	687,000	598,000	511,000	424,000
PROFIT/(LOSS)	233,000	144,000	57,000	(10,000)

GREY CUP GAME

REVENUES	$120,000
EXPENSES	15,000
PROFIT	$105,000

* IBI Estimates

events is difficult to assess, and since it will provide little supplementary income it has been excluded from the concession revenue analysis. Consequently, annual concession revenues will range from approximately $41,000 to $46,000 to $54,000 (Exhibit 2C12).

Total Operating Revenue

The only significant contributions to the total operating revenue of the expanded facility will be derived from rental and concession income. Therefore, as Exhibit 2C12 demonstrates, total operating revenues for an expanded facility will be approximately $424,000 under the low attendance assumption $511,000 in the medium, and $687,000 in the high.

Expanded Ivor Wynne
Operating Profit/Loss

Exhibit 2C13 indicates the profit/loss picture of an expanded Ivor Wynne facility before debt service. In a low scenario there will be an anticipated yearly profit of $57,000. Operating profits of $144,000 and $233,000 would be expected annually under the medium attendance scenario and under the high scenario respectively. Additionally, since the expanded facility will meet the standards required for seating capacity of a Grey Cup game there would be additional revenue if the Grey Cup Final were held at Ivor Wynne Stadium. If this were the case, additional profit of $60,000 would be anticipated before debt service. These figures contrast with an estimated loss of $10,000 with average attendance of 25,000, with no opportunity in the existing situation to attract the Grey Cup Game.

EXHIBIT 2C14

STADIUM FIXED OPERATING EXPENSES

ADMINISTRATION			
Salaries and Wages (including benefits)			
Manager	$35,000		
Secretary/Assistant	15,000		
		$50,000	
Professional services		30,000	
Insurance		27,000	
Office supplies, sundry		5,000	$112,000
MAINTENANCE, REPAIRS, SUPPLIES			
Salaries and Wages (including benefits)		$182,000	
External services		26,000	
Security		15,000	
Equipment rental, maintenance, repairs, supplies		143,000	366,000
PARKING			
Manager		$15,000	
Part-time employees (12)		3,250	18,250
UTILITIES			84,500
OPERATING EXPENSES BEFORE TAXES			$ 580,750
TAXES			
Realty			$ 1,236,000
Business			495,000
TOTAL OPERATING EXPENSES AFTER TAXES			$2,311,750

General Sources: Interviews with Stadium Managers
1980 Industry Profile Survey

* Dalton Insurance Company of Hamilton

** City Clerk AWA Assessment Offices

SECTION 4: NEW STADIUM

For analyzing the operations of a new 40,000 seat stadium, a capital investment of $33,400,000 has been assumed. It is further assumed that operations for the new stadium will continue under the same contractual arrangements that currently exist with both the Hamilton Tiger Cats and the concession operations currently undertaken at Ivor Wynne Stadium. In terms of management functions, the analysis proceeds under the assumption that Hamilton's Parks and Recreation Department will continue to provide their current services, but that an appointed manager will be required to oversee the operation of the new facility.

OPERATIONAL ANALYSIS

Operational Expenses

As in the arena scenarios discussed above, the assessment of operational expenses identifies only those costs which are fixed. Additional staff required for particular events will be charged out to the tenants or promotors as a cost supplementary to the base rental rate.

Administration

It is estimated that two full-time staff will be required for the administrative function of the new facility for a total administrative staffing cost of $50,000 per year (Exhibit 2C14). The assumed staffing requirements may appear to be overly conservative; however, a facility such as Rich Stadium in Buffalo which seats approximately 80,000 people requires only two full-time administrative employees. Given the fact that the stadium will be operating primarily for football functions, there are

no requirements for promotional staffing or budget. It is assumed that the several additional events coming to the stadium could be handled by the manager and his assistant. In addition to administrative staffing costs, there will be further costs incurred for professional services, insurance, and general office supplies bringing the total of administrative expenses to $112,000 (Exhibit 2C14).

Maintenance Repairs and Supplies

The estimates for expenses in this category are difficult to determine through an analysis of industry averages since stadium operations and their attending expenses vary widely among stadium facilities. Therefore it has been assumed that maintenance, repair, and supply costs will be incremented in proportion to the size of the new facility relative to the existing stadium at Ivor Wynne, that is to say, by approximately 30%. Consequently, the total annual operating budget for maintenance repairs and supplies is $336,000 for an average operating year over a 10-year period.

Parking

The new stadium will derive supplementary income from parking revenues. The staff requirements for parking provide for one full-time parking manager and 12 additional part-time employees for every football game for a total annual cost of $18,250 (Exhibit 2C14).

Utilities

Again for utilities, it has been assumed that the cost will be approximately 30% higher than those required annually at Ivor Wynne Stadium. Consequently, utilities expense for the year at the new stadium facility will be $84,500.

EXHIBIT 2C15

STADIUM OPERATING REVENUE COMPONENTS

	HIGH*			MEDIUM			LOW		
RENTAL	gross revenue	amuse. tax @ 10	rev. @ 15% net of amuse. tax	gross revenue	amuse. tax @ 10	rev. @ 15% net of amuse. tax	gross revenue	amuse. tax @ 10	rev. @ 15% net of amuse. tax
Ti-Cats	3,600,000	327,300	572,700	3,150,000	286,400	491,000	2,700,000	245,500	409,000
Concerts**	540,000	49,000	73,600	540,000	49,000	73,600	540,000	49,000	73,600
Other***	187,500	17,000	25,600	187,500	17,000	25,600	187,500	17,000	25,600
4,327,500	4,327,500	393,300	671,900	3,877,500	352,400	590,200	3,427,500	311,500	508,200

	HIGH*				MEDIUM				LOW			
CONCESSIONS	attend.	$/cap	gross	stadium revenue	attend.	$/cap	gross	stadium revenue	attend.	$/cap	gross	stadium revenue
Ti-Cats	360,000	1.00	360,000		315,000	1.00	315,000		270,000	1.00	270,000	
Concerts	60,000	.65	39,000		60,000	.65	39,000		60,000	.65	39,000	
Other	25,000	.70	17,500		25,000	.70	17,500		25,000	.70	17,500	
			416,500	50,465			371,500	50,515			326,500	45,565

	HIGH*		MEDIUM		LOW	
PARKING	Cars	Revenue	Cars	Revenue	Cars	Revenue
Ti-Cats	36,000	72,000	36,000	72,000	36,000	72,000
Concerts	8,000	16,000	8,000	16,000	8,000	16,000
Other	4,000	8,000	4,000	8,000	4,000	8,000
	48,000	96,000	48,000	96,000	48,000	96,000

* High: 40,000/game; Medium: 35,000/game; Low: 30,000/game. (Revenue for Ti-Cats is 20% for attendance over 20,000.)
** Assumes 2 concerts with 30,000 attendance; tickets @ $9.00.
*** Assumes 1 other event with 25,000 attendance; tickets @ $7.50.

Sources: Interviews with Hamilton and Toronto Promoters; Interviews with stadium managers.

Operating Expenses
Before Taxes

Since the tax costs for the new facility will flow back to the municipality, the pertinent bottom line expense figure is that which assesses operating expenses before taxes. The total of operating expenses therefore for a new 40,000-50,000 stadium are approximately $581,000 annually (Exhibit 2C14).

It should be noted that no provision has been made for box office expense, since under the current arrangement with the Hamilton Tiger Cats box office operations and their costs are the responsibility of the football team.

Operational Revenues

Exhibit 2C15 identifies the three components of stadium revenues and analyzes them under three scenarios identified as high, medium, and low. The high revenue figure assumes an average game attendance of 40,000 spectators, the medium 35,000 spectators, and the low 30,000 spectators. Under all three projections it has been assumed that the stadium will attract two major concerts every year and one additional spectator event. Such an assumption is well within the bounds of the number of events normally held in such a facility. For example, the CNE Stadium assumes that it will have at least two major concerts and several other events each year. It is further assumed that other more community oriented functions such as local soccer and football league games, high school matches, and drum and bugle corps events will continue to be held at Ivor Wynne Stadium.

Rental

As Exhibit 2C15 demonstrates the annual rental anticipated under the high medium and low scenarios will be approximately $672,000, $590,000, and $508,000. As in the arena analysis, this revenue figure reflects income that is net of the 10% amusement tax. In addition it should be noted that the City now charges the Hamilton Tiger Cats a base rental rate of 15% with the provision of an additional 5% of all revenues generated by seating of more than 20,000 spectators.

Concessions

Gross concession revenues are based on an average event attendance as a per capita concession expenditure figure appropriate to the type of event in question. The derivation of the concession revenue pertinent to the stadium's operation is based on the current contract with the concession agency now operating in Ivor Wynne Stadium. This contract provides for a guaranteed annual income of $30,000 plus 11% of any revenue in excess of $185,000. Consequently the concession income under the three scenarios totals approximately $55,000 $51,000, $46,000.

Parking

The number of cars travelling to the new stadium facility have been determined on the basis of the transportation analysis done for this feasibility study. 4,000 spaces would be provided on site, and $2.00 per car is charged. Other parking requirements are made up by renting spaces in the regional shopping centre, which, in contrast to Ivor

Wynne Stadium can be made to break even because of the increased number of events permitted. This is the most economical solution. In addition, the balance of car parking requirements would be provided in the ICTS corridor in conjunction with that facility.

Revenues are thus estimated at $96,000 for all scenarios.

Summary

Exhibit 2C15 demonstrates the total of the components for stadium operating revenues. In the low revenue assumption total operating revenues will reach $622,000 with the ICTS and $627,000 without it. For the medium range of operating revenues the annual totals will reach $713,000 and $718,000 and under the high scenario $805,000 and $810,000.

As stated above the estimates for stadium operations are based on the current contracts adopted at Ivor Wynne Stadium. Currently, the Parks and Recreation Department of Hamilton is revealing their arrangements and anticipates new contracts by the time that such a new stadium facility would be in operation. The recreation department feels that the arrangements now being held are inadequate in comparison to those existing in other facilities. Therefore it may be assumed that the revenue figures derived above are, if anything, more conservative than those which eventually would be obtained under new contractual arrangements.

EXHIBIT 2C16

STADIUM TOTAL OPERATING REVENUES*

	HIGH	MEDIUM	LOW
Rental	672,000	590,000	508,000
Concessions	55,000	51,000	46,000
Parking	96,000	96,000	96,000
TOTAL	823,000	737,000	650,000

* IBI Estimates

STADIUM OPERATING PROFIT/LOSS*

	HIGH	MEDIUM	LOW
Expenses	581,000	581,000	581,000
Revenues	823,000	737,000	650,000
PROFIT/(LOSS)	222,000	156,000	69,000

GREY CUP GAME

REVENUES	$ 120,000
EXPENSES	15,000
PROFIT	$ 105,000

* IBI Estimates

Stadium Operating
Profit/Loss

Exhibit 2C16 demonstrates that under all scenarios the new stadium facility would operate at a profit excluding debt service. The range with an ICTS facility is from $41,000 to $224,000 annually and without the ICTS from $46,000 to $229,000. In addition to these revenues which are derived from operations for an average year it may be expected that there will be additional revenue derived should the Grey Cup Final be held in the new facility. If such were the case, following the assumptions used to determine the estimates above, an additional $105,000 of revenue would be anticipated.

HAMILTON STADIUM/ARENA FEASIBILITY STUDY

APPENDIX 2D

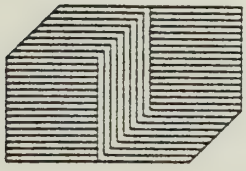
FINAL COST REPORT

HAMILTON STADIUM/ARENA STUDY

Phase 2

FINAL COST REPORT

Prepared by:



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September, 1980

INTRODUCTION

In order to predict the anticipated level of capital cost expenditure for the optional facilities under study, analysis was made of historical data gathered from recently tendered or built projects of a similar function and capacity to that contemplated for Hamilton. The cost data was obtained from information in HRA's files or by telephone surveys of specific facilities.

This cost data was analysed and adjusted to prepare a cost model for each physical option under study, namely:

- Expansion of Ivor Wynne Stadium to an ultimate capacity of approximately 42,500 seats.
- Provision of New Stadium on either of two peripheral sites and with a similar capacity (42,500 seats).
- Provision of New Trade Centre/Arena on either of two downtown sites with a capacity of approximately 15,000 seats.

The cost of the combined stadium/arena complex was not analysed for reasons stated elsewhere in this report.

COSTING METHODOLOGY

For each facility option, analysis was made of similar facilities constructed in Canada or the United States to determine whether a common cost factor existed in relation to seating capacities.

All costs were adjusted to reflect a Hamilton equivalent cost as at September 1980 for direct comparison. Exhibits 2 D 1, 2 D 2 & 2 D 3 show historical tabulation which show a wide variance in the cost per seat and which reflect differences in design and location.

The technique of cost modelling was selected as the best approach to establish the probable level of capital cost for each facility. The technique involves the detailed cost analysis of similar projects built elsewhere and adjusting this data to suit a Hamilton site in current dollars.

From the projects studied the following were selected to form the basis of the cost models.

(i) Taylor Field Expansion, Regina (8,500 seats) to simulate the expansion of Ivor Wynne Stadium, Hamilton.

/cont....

COSTING METHODOLOGY (cont'd)

(ii) Commonwealth Games Stadium, Edmonton (42,783 seats) to simulate a new stadium condition in Hamilton

(iii) Omni Coliseum/Trade Centre, Atlanta Georgia (15,000 seats) to simulate a new Arena/Trade Centre in Hamilton.

SUMMARY OF FINDINGS

On the basis of the cost models prepared from the analysed data of the projects previously noted, the following are the major cost factors.

It should be noted that costs have been calculated in today's dollars (September 1980). Figures in parenthesis reflect the anticipated level of costs when each of the facilities is assumed to be tendered, namely:

Expansion of Ivor Wynne Stadium - January 1982

New stadium or new arena - July 1982

1. The probable cost to expand Ivor Wynne Stadium by providing an additional 8,500 seats between the goal lines on the south side would be $10.4 M ($12.3M)

2. An additional cost of $11.6M ($13.7 M) would be required to upgrade this expanded facility to a "good-as-new" stadium. That is a total cost of $22M ($26M).

3. The probable cost of a new stadium of similar capacity to that stated above (42,500 seats approx) built on Site 2 without a roof would be $32.4M ($40.1M).

4. The probable cost of the same stadium built on site 2A would be $32.5 M ($40.3M).

5. The probable cost of a new Trade Centre/Arena (15,000 fixed seats) built on site 6 would be $38.8 M ($48.1M).

6. The probable cost of the same Trade Centre/Arena built on site 7 would be $37.75 M ($46.8M).

Land costs and costs associated with possible restructuring of ground transportation systems are excluded from the above.

CAPITAL COSTS

Inclusions

The total capital costs include:

- Construction Cost of Building (Arena or Stadium)
- Site Development Costs at each site
- Equipment Costs
- Professional Fees
- Program Contingency

Building Construction Costs

The net building cost as tendered, exclusive of site development and movable equipment costs and professional fees, but inclusive of seats, scoreboard, sound system, etc.

Site Development

Cost of roads, parking, fencing, service connections, within each site boundary.

Equipment Costs

Movable equipment e.g., stage, basketball floor, boxing ring, seats, etc.

Professional Fees

The professional fees for Architects, Engineers, Lawyers, Cost Consultants and Specialist Consultants, together with the cost of surveys, soil tests, public relations, models, etc., have been carried in this amount. It is estimated that these costs would amount to 10% of construction and site development costs.

Program Contingency

A contingency allowance of 5% has been included to cover unforeseen conditions or situations arising throughout the duration of each project.

Exclusions

- Land costs
- Road & Service costs outside site boundary
- Financing charges

CAPITAL COSTS (cont'd)

Escalation Index to 1980

Costs of previously completed projects in U.S.A., have been adjusted for escalation by reference to output indices prepared by Robert Snow Means Company, Inc., U.S.A. Those projects in Canada have been adjusted by reference to output indices prepared by Construction Data Systems, Ltd Montreal.

Local to Hamilton Index

It is necessary to compare costs on an equal basis geographically which will take account of the climate conditions which affect design. Therefore, to transpose, say Omni Coliseum to Hamilton, a composite factor is applied to its local cost to account for wage, material and other cost differences existing between the two cities.

Indices prepared by the above two firms have been used for this exercise.

Assumed Schedules and Future Escalation

For the purpose of this study it is assumed that contract drawings will be ready for tendering at the following times:

Ivor Wynne Expansion	January 1982
New Arena or Stadium	July 1982

On this basis taking into account all economic factors and conditions affecting construction cost trends, we believe current costs will escalate between now and January 1982 by 18% and 24% to July 1982. The figures quoted in the Summary of Findings reflect this opinion.

Escalation for the duration of the construction period has been included in the costs. The estimated construction period is as follows:

Ivor Wynne Stadium	12 months for Basic Facility 18 months for Full Facility
New Stadium	28 months
New Arena	22 months

HAMITLON STADIUM/ARENA STUDY

Historical Data Tabulation for Expansion to Stand Capacity
Project Costs

Project	Location	Tender Date	Building Construction Costs	Escalation & Location Index	Current Hamilton Equiv Costs	No of Fixed Seats	Hamilton Cost/Seat $	Remarks
			($000,000's)		($000,000's)			
Winnipeg New Stand	Winnipeg	July 1978	4.20	1.29	5.42	8,271	655.00	Completed 1979
*Taylor Field Expansion	Regina	March 1978	5.828	1.30	7.576	8,500	890.00	Completed Spring 1980

Costs exclude: - Design Fees

- Equipment

*Taylor Field, Regina selected as cost model

EXHIBIT 2 D 1

HAMILTON STADIUM/ARENA STUDY

Historical Data Tabulation for New Stadia
Project Costs

Project	Location	Tender Date	Building Construction Costs	Escalation & Location Index	Current Hamilton Equiv Costs	No of Fixed Seats	Hamilton Cost/Seat $	Remarks
Covered			($000,000's)		($000,000's)			
Silver Dome	Pontiac	1973-75	55.7	1.87	104.16	80,400	1,295	
Minneapolis	Minnesota	1973-75	55.0	2.07	168.85	65,000	2,598	
King County	Washington	1973-76	64.0	1.95	124.80	65,000	1,920	(Air (Supported (Structure
Astro Dome	Houston	1962-65	38.0	4.00	152.00	53,000	2,880	
Super Dome	New Orleans	1971-75	168.0	2.02	340.00	72,000	4,700	
British Columbia Place	Vancouver	-	75.0	-	75.00	60,000	1,160	HRA Concept Estimate
Uncovered								
*Commonwealth Stadium	Edmonton	1975	19.8	1.48	29.30	42,780	685	
Yankey Stadium	New York	1977-76	91.4	1.98	180.90	54,000	3,350	
Olympic Stadium	Montreal	1974-76	564.0	1.4	790.00	71,400	11,000	

Costs exclude: - Design Fees
- Equipment

*Commonwealth Stadium, Edmonton selected for cost model

EXHIBIT 2 D 2

HAMILTON STADIUM/ARENA STUDY

BUILDING CONSTRUCTION COST FOR NEW ARENA — HISTORICAL DATA TABULATION

Project	Location	Tender Date	Building Construction Costs	Escalation Index to Sept 1980	Local Ontario Index	Current Hamilton Equiv Costs	No Fixed Seats	Estimated Hamilton Cost/Seat $	Remarks
			($000,000's)			($000,000's)			
Rosemount Horizon	Chicago	Feb 1979	12.9	1.19	1.01	15.50	15,500	1,000	Completion May 1980
McNichols	Denver	July '73	10.8	1.80	1.06	20.56	16,500	1,250	Completed Aug 1975
Kemper	Kansas	Apr 1973	12.95	1.72	0.99	22.04	16,000	1,380	Completed Nov 1974
Joe Louis	Detroit	Dec 1978	26.5	1.22	0.98	33.92	21,000	1,615	Completed Dec 1979
Summit	Houston	Oct 1973	14.4	1.74	1.02	25.63	14,906	1,720	Completed Oct 1975
Omni Arena *	Atlanta	Feb 1971	11.29	2.00	1.15	25.97	15,000	1,730	Completed Oct 1972
Civic Coliseum	Charleston Virginia	Oct 1978	16.20	1.25	1.04	21.18	12,000	1,765	Completed Aug 1980
Coliseum	Edmonton	May 1973	13.7	2.50	0.84	28.77	15,294	1,880	Completed Aug 1974
Coliseum	Richfield Ohio	Dec 1973	20.2	1.72	1.01	35.04	18,500	1,890	Completed Oct 1974

← Local Information/Conditions → ← Hamilton Information/Conditions →

Costs exclude:
- Site Development
- Design Fees
- Equipment

* Omni Arena, Atlanta selected for cost model

EXHIBIT 2 D 3

From previous similar projects surveyed (Exhibit 2 D 1), it was identified that the design concept used to provide an additional 8,500 seats to the stand at Taylor Field, Regina, could also be applied to the Hamilton situation and this was selected as the basis of the cost model. Illustrations of this facility are presented elsewhere in the report by kind permission of the prime consultants, Reid, Crowther and Partners Ltd.

The prime consultants for the Taylor Creek project provided details of the final construction costs and very kindly assisted the study group to identify the key factors to permit a detailed cost analysis to be made.

Exhibit 2 D 4 which follows shows this detailed cost analysis which forms the basis of the cost model for extending the Ivor Wynne Stadium.

The following notes amplify this cost model, the item numbers for which co-incide with those making up the cost model.

1. Stand Cost - Total construction cost derived from contractor's final accounts.

2. Escalation and Location Adjustments - Increases in cost due to escalation and location differences.

3. The resultant cost would provide exactly the same facility in Hamilton today.

4. The existing Ivor Wynne Stadium is higher than the original stand at Regina. Adjustment has been made to allow for this extra height requirement.

5. Possible adjusted costs to suit Hamilton situation for basic stand.

6-18 Estimates of site development work required to the Ivor Wynne grounds, including demolition of bleachers at west side, provision of bus terminal, relocation of existing soccer field with provision of new changing accommodation, etc.

19-20 Professional fees and contingencies associated with the provision of the "Basic Facility".

Optional Extras

In order to compare this facility to what a new facility of the same capacity would provide, extra items need to be considered.

21. Should the existing bleachers at the west end be demolished to make way for a new bus terminal, the same amount of seats would have to be added to the new stand. Whilst this is a large expense, there is no doubt the quality of seats, in terms of viewing, will be greatly enhanced.

22. In order to permit the addition of a running track, the south stand lower seats have to be removed. Allowance has been made in this item for the provision of collapsible, telescopic seats.

23. Private boxes should provide additional revenue. The cost for these are shown here which would include elevator access, washroom facilities, etc.

24. Cost of providing portable running track.

25. This cost includes surface drainage to North stand and sealing, repairing, refinishing and waterproofing both stands.

26. This is purely an allowance to cover cost of refurbishing existing facilities, providing new locker rooms, lounge, administrative offices, etc., within same.

27. Cost includes removal and replacement of all existing seats.

HAMILTON STADIUM STUDY

Cost Analysis of Taylor Field Expansion, Regina

Seating capacity of New Stand 8,500 Completion date: Spring 1980

Element	Total Cost $.000's	Cost Seat (8,500)	Scope
Substructure	337	39.65	Excavation, foundations
Structure	1,850	217.65	Steel frames, floors
Cladding	756	88.94	Outer walls, doors, windows
Partitions	255	30.00	Interior walls and doors
Stairs and Ramps	334	39.29	Stairs, ramps
Finishes	96	11.29	Walls, floor & ceiling finishes
Fittings & Equipment	292	34.35	Built-in fittings, washroom, accessories
Mechanical	682	80.24	Heating, ventilation, plumbing
Electrical	492	57.24	Service distribution Lighting
Overheads & Profit	612	72.00	-
Demolition & Renovations	122	14.35	To existing structure
Total Construction Costs	5,828	685.00	(Rounded)

Hanscomb Roy Associates

EXHIBIT 2 D 4

1.	Stand Cost (Regina) per summary breakdown (see previous page).	$ 5,828,000
2.	Adjust for escalation to September 1980 and for Hamilton location (30%)	1,748,000
3.	Probable cost for exactly the same facility built in Hamilton (September 1980)	$ 7,576,000
	Building Adjustments	
4.	Additional height requirements of stand including extra floor accommodation	620,000
5.	Probable cost of adjusted stand to suit Hamilton ($964 per seat)	8,196,000
	Site Development	
6.	Remove existing seating bleachers	9,000
7.	Demolish existing change room	6,000
8.	Remove timber wall, west side	3,000
9.	Asphalt paving to bus terminal	35,000
10.	Raised concrete paving to bus terminal	33,000
11.	New parking surface	40,000
12.	New wooden fence, west side	30,000
13.	Relocate soccer field	28,000
14.	New bleachers, arcade and change rooms	435,000
15.	Remove existing scoreboard, press boxes	10,000
16.	Relocate lighting standards	20,000
17.	Mechanical & Electrical site services	100,000
18.	Landscaping	55,000
	Probable cost (Stand + Site Development)	9,000,000

		b/f	$9,000,000
19.	Professional Fees (allow 10%)		900,000
20.	Program Contingency (allow 5%)		500,000
	"Basic Facility" Cost		10,400,000
	Optional Extras to upgrade existing stadium to 'good as new' condition (costs include fees and contingencies)		
21.	Provision of additional 4,716 seats at ends of new stand to replace existing bleachers removed (Based on $964 per seat).		5,250,000
22.	Replace seating of lower south stand with telescopic seats (1,232) including removal of existing construction.		600,000
23.	Provision of private boxes including elevator access		500,000
24.	Portable running track		250,000
25.	Basic repairs to existing stand (waterproofing, sealing, etc)		1,500,000
26.	Allowances for refurbishment of existing facilities (new locker rooms, lounge, administration offices, etc)	say	2,000,000
27.	Replacement of existing seating (30,000 remaining)		1,500,000
	Probable cost for 'good-as-new' Stadium (42,447 seats) using Regina concept		$22,000,000

From previous similar projects surveyed (Exhibit 2 D 2), it was identified that the design concept used to develop the Commonwealth Stadium, Edmonton, (42,783 seats) could also be applied to the Hamilton situation and this was selected as the basis of the cost model. Illustrations of this facility are presented elsewhere in the report by kind permission of the prime consultants Ragan, Bell, McManus Consultants Ltd., Edmonton.

This consultant provided details of the final construction cost and very kindly assisted the study group to identify the key factors to permit a detailed cost analysis to be made.

Exhibit 2 D 5 which follows shows this detailed cost analysis which forms the basis of the cost model used for sites 2 and 2A. The following notes amplify this cost model, the numbers for which co-incide with those making up the cost model.

1. Total construction cost, per final accounts.

2. Market conditions: Due to the national importantance of the project and the very tight time frame within which the construction had to be completed, total co-operation was received from all contractors, suppliers and work people to prevent strikes, delays, etc. The resultant effort stimulated a very competitive bidding environment and led to provision of a highly economical facility.

   It is not expected that this condition would apply equally to the Hamilton situation in the foreseeable future.

3. The Recreation and Athletic Centre, whilst providing facility administration, dressing room and support space, also contained recreation facilities to be used by the community at large, e.g., gymnasia, squash courts, etc. All of these facilities would not be required for Hamilton and an assessment has been made of the cost of these items and deducted from the total cost.

4. Deduction for all site development costs from Edmonton total.

5. Escalation adjustment includes for increased costs from 1975 as well as the cost differential between Edmonton and Hamilton

6. Cost of retaining wall to close off end of Stadium where Recreation and Athletic Centre removed (item 3).

7. Additional space required due to deletion of Recreation and Athletic Centre (item 3).

8. It is assumed that new stadium would require artificial turf, similar to what has been provided at Ivor Wynne.

The resultant cost of $25.4M indicates the probable level of expenditure of the stadium excluding site development costs.

Site Development Costs (Site 2)

9-14 Indicates anticipated work required to set this basic stadium on Site 2.

15-16 Professional fees and contingencies for total program.

Site Development Costs (Site 2A)

1-5 Includes anticipated work required to set the basic stadium on Site 2A.

HAMILTON STADIUM STUDY

Cost Analysis of Commonwealth Games Stadium, Edmonton, Alberta

Seating Capacity: 42,783 Completion Date: Spring 1978

Element	Total Cost ($000's)	Cost per Seat (42,783)	Scope
1. Formation of depressed field bowl	1,000	23.37	Excavation & formation of berm
2. Sportsfield & Track	1,700	39.74	Drainage, natural turf field, running track.
3. On-grade seats	2,700	63.11	Insulation, gravel, grade beams, bleachers, drainage, etc
4. Elevated seats	1,900	44.41	Foundation, structure, stairs, cladding, bleachers, drainage.
5. Seating units	1,700	39.74	Fixed seats
6. Athletic Centre	3,420	79.94	Recreation Centre including changing, gymn, lounge, admin.
7. Concessions & washrooms	1,400	32.72	Male & female, public or private WR's. Non food prep. Concessions
8. Press Box	400	9.35	Press and T.V. facilities.
9. Ticket Sales	50	1.17	Gatehouses, crowd control, ticket sales.
10. Field Store	5	1.17	Equipment storage, maintenance
11. No roof	-	-	No roof.
12. Field lighting	15	3.51	Halide or quartz units
13. Sound system	1,600	37.40	Stand: Press box: field sound system.
14. Scoreboard	800	18.70	Electronic, including structure
15. Entrance & Concourse	850	19.87	Paving, retaining walls, railings (Main circ. elements)
16. Miscellaneous	300	7.01	Signs, turnstiles, flagpoles, etc
17. Site Development	1,780	41.61	Pavings, fencing, planting, site services, etc.
Total Construction Costs	$19,800	$463.00	(Rounded)

Hanscomb Roy Associates

EXHIBIT 2 D 5

Cost Model for New Stadium on Site 2 (Based on Cost Analysis of Commonwealth Stadium, Edmonton)

1.	Total 1975 Stadium Cost (Edmonton) per summary breakdown (see previous page)	$19,800,00	
2.	Adjust to reflect less favourable market conditions which will exist in Hamilton	1,100,000	
	Probable cost of same facility in Hamilton	20,900,000	
3.	Delete Recreation & Athletic Centre from Edmonton	(3,420,000)	DT
4.	Delete Site Development Costs from Edmonto	(1,780,000)	DT
	Probable Cost (less Athletic Centre and Site Development	15,700,000	
5.	Adjust for escalation to September 1980 and for Hamilton location (48%)	7,550,000	
	Probable Cost September 1980	$23,250,000	
	Stadium Adjustment		
6.	Retaining wall where Athletic Centre removed	150,000	
7.	Additional space for facility administration, dressing rooms, support, etc. (say 20,000 SF)	1,000,000	
8.	Premium for artificial turf (not included in Edmonton Cost)	1,000,000	
	Probable Cost (Stadium)	$25,400,000	

		b/f	$25,400,000
	Site Development Costs (Site 2)		
9.	Culvert to replace creek		125,000
10.	Asphalt paving including lines and bumpers		1,200,000
11.	Concrete paving		370,000
12.	Storm drainage and sewer connections		530,000
13.	Car park and bollard lighting		275,000
14.	Landscaping allowance		100,000
15.	Professional fees (allow 10%)		2,800,000
16.	Program contingency (allow 5%)		1,600,000
	Probable cost of New Stadium on Site 2 (42,783 seats) using Edmonton Concept		$32,400,000

	Probable cost of Stadium only as items 1 to 8 for Site 2	$25,400,000
	Site Development	
1.	Asphalt paving including line and bumpers	1,330,000
2.	Concrete paving	410,000
3.	Storm drainage & sewer connections	585,000
4.	Car park and bollard lighting	315,000
5.	Landscaping allowance	100,000
		28,140,000
6.	Professional fees (allow 10%)	2,810,000
7.	Program contingency (allow 5%)	1,550,000
		$32,500,000

From previous similar projects surveyed (Exhibit 2 D 3), it was identified that the design concept used to develop the Omni Coliseum and Trade Centre, Atlanta (15,000 seats) could also be applied to the Hamilton situation and this was selected as the basis of the cost model. Illustrations of this facility are presented elsewhere in this report by kind permission of the prime consultants, Thomson, Ventulett, Stainbek and Associates Inc., Atlanta, Georgia.

This consultant provided details of the final construction cost and very kindly assisted the study group to identify the key factors to permit a detailed cost analysis to be made.

Exhibit 2 D 6 which follows shows the detailed cost analysis which forms the basis of the cost model used for site 6 and 7. The following notes amplify this cost model, the numbers for which co-incide with those making up the cost model.

1. Total construction cost per final accounts.

2. Escalation and location increase.

3. Cost of exactly the same facility built in Hamilton today.

Building Adjustments

4. The Atlanta project has a raised podium surrounding the building. The exterior walls below the podium level are not exposed and therefore, do not require to be up to 'street quality'.

   Adjustment is made for the Hamilton situation which will require more exposed wall surface.

5. In order to expand the playing surfaces to provide more Trade Centre space, telescopic seats have been included in lieu of fixed seats.

6. A conventional flat roof for the Hamilton facility in lieu of the raised pod design will save $474,000.

7. Allowance to cover cost of providing movable equipment for additional forms of recreation which would generate further revenues.

The resultant cost of $28.4 Million indicates the probable level of current expenditure for the building excluding site development costs.

Site Development Costs (Site 6)

8-16 Includes the cost of anticipated work required to set the basic arena on site 6 and tie into surrounding facilities.

Site Development Costs (Site 7)

2-8 Includes anticipated work required to set basic stadium on Site 7.

It should be noted, all costs quoted exclude land costs, finance charges and road and service costs outside site boundaries.

Optional items for Arena on either site

1.	Air supported domed roof structure with stainless steel membrane in lieu of conventional flat roof	NO ADDITIONAL COST
2.	Suspended conventional floor system in lieu of telescopic seats This system envisages a hung floor at ceiling level which can be lowered to form a Trade Centre floor	Extra $1,900,000
3.	Provision of ten (10) luxury viewing boxes within the Arena	Extra $100,000

HAMILTON ARENA STUDY

Cost Analysis of Omni Coliseum, Atlanta, Georgia

Fixed Seating Capacity: 15,000 Completion Date: October 1972

Element	Total Cost ($000's)	Cost/ Seat 15,000	Scope
Substructure	1,029	68.60	Excavation, Foundations, Piling
Structure	3,420	228.00	Steel Frame, Floors, Steel Support.
Cladding	1,153	76.86	Outer walls, doors, windows, Roof
Partitions	371	24.73	Interior walls & doors
Stairs & elevators	367	27.46	Stairs, ramps, escalation & elevators
Interior finishes	500	33.33	Wall, Floor & Ceiling finishes
Fittings & Equipment	1,045	69.67	Built-in Fittings, Seating
Mechanical	1,795	119.67	Heating, Ventilation, Plumbing and Drainage, Fire Protection.
Electrical	953	63.53	Services, distribution, lighting
Overheads and Profit	657	43.81	Contractor's fees and overheads
NET BUILDING COST	11,290	752.66	
Site Development	710	47.34	
TOTAL CONSTRUCTION COSTS	12,000	800.00	Final Costs October 1972

Hanscomb Roy Associates

EXHIBIT 2 D 6

HAMILTON ARENA STUDY
Cost Model for New Arena on Site No 6
(Based on Cost Analysis of Omni Coliseum, Atlanta, Georgia)

1.	Net Building Cost (Omni, Atlanta) per summary breakdown (see previous page)		11,290,000
2.	Adjust for escalation to September 1980 and for Hamilton location (130%)		14,663,000
3.	Probable cost for exactly the same facility built in Hamilton September 1980		25,954,000
	Building Adjustments		
4.	Additional 'street quality' exterior walls (Hamilton reqires more exposed wall surfaces on N & W elevtions)	ADD	120,000
5.	Telescopic seating to certain sections in lower level to permit expanded trade centre space	ADD	1,300,000
6.	Replace raised pod roof design of Omni by conventional flat roof	DEDUCT	(474,000)
7.	Provision of Movable Equipment	ADD	1,500,000
	- Indoor soccer floor	185,000	
	- Basket ball floor	160,000	
	- Indoor running track	485,000	
	- Stage	330,000	
	- Boxing ring	6,000	
	- Circus floor	33,000	
	- Portable seats	100,000	
	- Electronic score board	28,000	
	- CCTV Screen for boxing matches	6,000	
	- Zamboni	22,000	
	- Miscellaneous	145,000	
		ADD 1,500,000	
	Probable Cost (Building)		28,400,000

		B/F	$28,400,000
	Site Development Costs (Site 6)		
8.	Raised Plaza Extension		$ 480,000
9.	Additional Promenade Level		2,730,000
10.	People Ramps from Street to Plaza Level		240,000
11.	Basement Parking & Storage		860,000
12.	Connecting Mall Space		33,000
13.	Public Escalators		650,000
14.	Street Level Parking		50,000
15.	Mechanical & Electrical Service Connections		70,000
16.	Landscaping		40,000
	Probable Cost (Building & Site)		33,553,000
17.	Professional Fees (allow 10%)		3,357,000
18.	Program Contingency (allow 5%)		1,890,000
	Probable Arena Cost (15,000 seats) (Site 6)		$38,800,000

NOTE: The above costs exclude land costs and financing charges

1.	Probable Cost of Building (as items 1 to 7 (site 6))	$28,400,000
	Site Development	
2.	Demolitions	110,000
3.	Basement Excavations	485,000
4.	Truck Ramps	145,000
5.	Basement Parking	3,115,000
6.	Surface Paving	263,000
7.	Mechanical & Electrical Service Connections	75,000
8.	Landscaping	100,000
	Probable Cost Building and Site	$32,693,000
9.	Professional Fees (allow 10%)	3,267,000
10	Program Contingency (allow 5%)	1,790,000
	Probable Cost Arena (Site 7)	$37,750,000

NOTE: The above costs exclude land costs and financing charges

STADIUM/ARENA FEASIBILITY STUDY

APPENDIX 2E

LAND USE ASSESSMENT OF POTENTIAL SITES

Exhibit
2E1

Phase 2 Sites

APPENDIX 2E

LAND USE ASSESSMENT OF POTENTIAL SITES

1. INTRODUCTION

The preliminary evaluation of potential sites for an arena and/or stadium facility described in the Phase 1 report concluded that the facilities would be better developed independently. It determined that, for the arena, sites in the downtown area ranked most highly; and concluded that the arena should also serve the function of a trade centre, complementing the convention centre presently under construction. This proposed dual role for the arena/ trade centre necessitates its location in close proximity to the convention centre, thus reinforcing the preference for a downtown location. Consequently, three downtown sites were carried forward from the preliminary evaluation for detailed analysis in this second phase.

Similarly, three potential sites for a stadium were retained. These include the existing Ivor Wynne Statium as well as two other sites in peripheral locations. Subsequent to the completion of the Phase 1 report, an additional site was proposed and has been included in this analysis. Since this new site is located in proximity to Site #2, it has been referred to as Site #2a.

A number of other potential sites for the arena or stadium which had been proposed after completion of the Phase 1 analysis, were found, upon preliminary analysis, to be less suitable than the sites already under examination.

All seven potential sites (which are shown on Exhibit 2E1, opposite) were subjected to detailed analysis of the site specific and locational attributes described in Phase 1. The results of the analysis are summarized below and more detailed descriptions of each site are provided in Section 4.

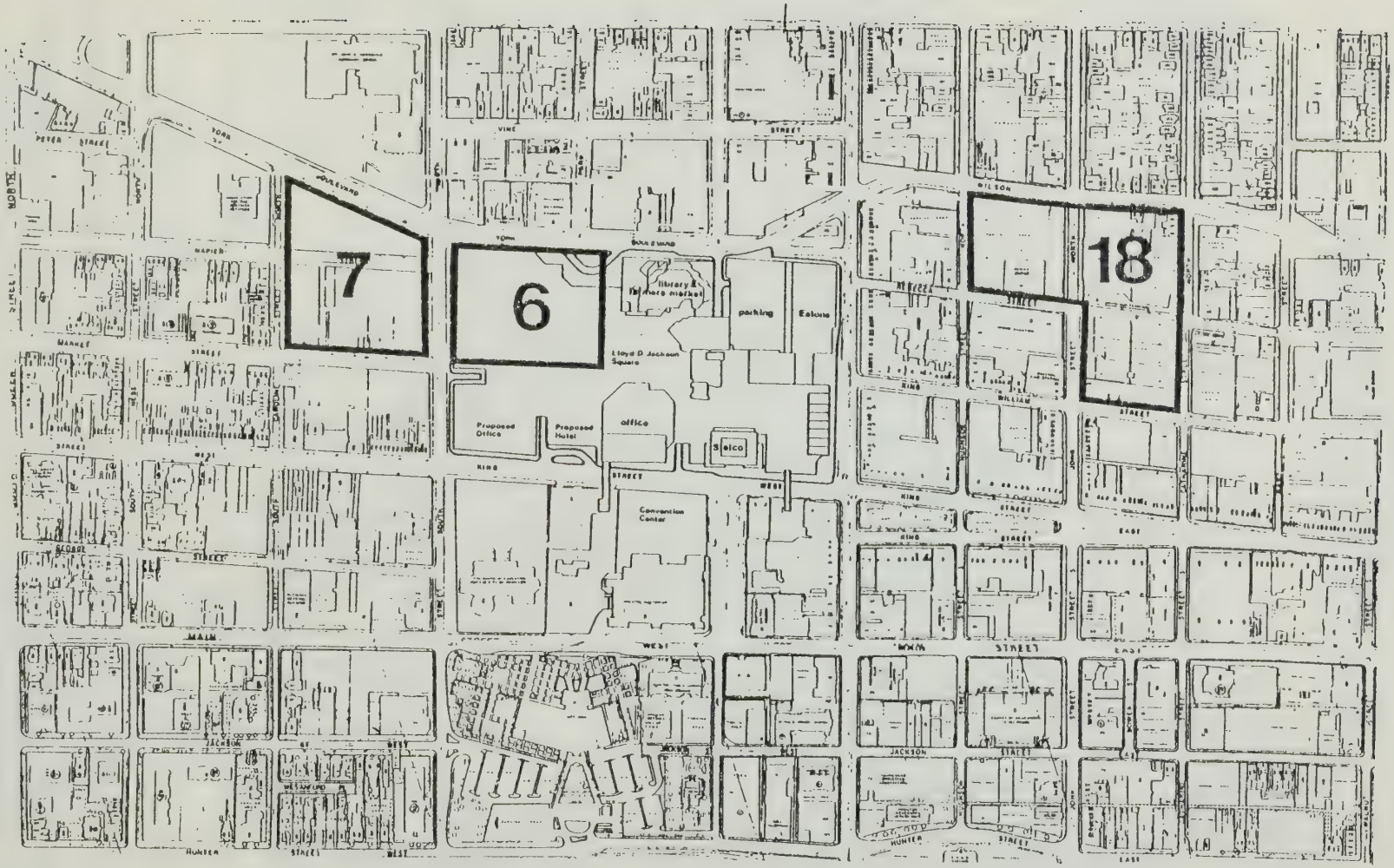


EXHIBIT 2E2

POTENTIAL ARENA/TRADE CENTRE SITES

2. POTENTIAL ARENA/TRADE CENTRE SITES

The three potential arena/trade centre sites are shown on Exhibit 2E2. As can be seen, all are located within the downtown core of the City, in relative proximity to the Convention Centre.

The analysis of the sites concludes that Site #6 is clearly the most suitable site for an arena/trade centre facility. This site enjoys numerous advantages, including:

- complete municipal ownership;
- applicable zoning and official plan designations;
- proximity to the Convention Centre it is intended to complement;
- close relationships with the proposed office tower and hotel, which will serve as links between the Convention Centre and the arena/trade centre and will complete and enhance the Jackson Square Redevelopment Area.

Site #7 ranked second highest in the analysis of arena/trade centre sites. It is also relatively close to the Convention Centre, and pedestrian access across Bay Street might be incorporated into the design of the facility so as to provide a link to Jackson Square and the Convention Centre. Although this site would be suitable for the arena/trade centre, it suffers certain drawbacks in comparison with Site #6:

- a substantial portion of the site is in private ownership and would, therefore, necessitate acquisition;
- a zoning amendment would be required;
- Napier Street between Caroline and Bay Streets would have to be closed, and a by-law to that effect would be required;

- the warehouse building fronting Caroline Street in the southern portion of the site would have to be demolished, even though it is in good condition and is occupied by Canada Post;
- development of the facility on this site might impact residents of the modern apartment building at the corner of Caroline and Market Streets;
- it is more distant from the Convention Centre, and notwithstanding the possibility of a pedestrian link is separated from the Convention Centre and the main Jackson Square development by Bay Street, designated a Major Road in the plan for the central area.

Site #18 proved to be the least suitable (of the three) for development of an arena/trade centre facility. Its most serious disadvantage is its distance from the Convention Centre and the consequent difficulty in using the facilities in conjunction with one another. Other major difficulties inherent to this site include:

- distance from the core area and related services and facilities which would derive economic benefit from location of the facility;
- difficulty of crossing John Street which is designated a Major Road in the Central Area Plan;
- presence of the Wesley Centre on the northwest corner of Rebecca and John Streets, within the site;
- presence of the Mackenzie Convalescent Centre adjacent to the site, which would be impacted by noise and traffic from the site;
- difficulty of acquisition as there are a number of small lots under individual ownership, in addition to those owned by the City and one other major owner.

The analysis of the potential arena/trade centre indicates that Site #18 is not as suitable for the development of the facility as the other two sites and it has been eliminated as a potential site. Description of the factors entering into the analysis with respect to each of the sites is given in more detail in Section 4.

3. POTENTIAL STADIUM SITES

Of the potential stadium sites, Site #2 proved to be the most suitable for construction of a new facility. It enjoys numerous advantages including:

- partial municipal ownership;
- conformity to Regional and City Official Plans;
- proximity to the new shopping centre and its related facilities;
- good accessibility with the possibility of service by the Intermediate Capacity Transit System (ICTS);
- proximity to residential areas whose populations could use the facility.

Site #2a, which was included subsequent to the Phase 1 evaluation, shares many of the advantages of Site#2 with respect to accessibility and proximity to population. However, certain major considerations make it less attractive than Site #2:

- the site would have to be assembled and bought from various owners, incurring greater costs than Site #2;
- development of the site would be incompatible with existing residential uses along Limeridge or Upper Sherman Road;
- existing Official Plan and zoning designations would have to be changed;
- opposition to development of the site has been raised by the developers of the adjacent shopping centre.

Site #9 also proved to have certain inherent problems. Among its major drawbacks are:

- available acreage is insufficient to fulfill the parking requirements, necessitating the acquisition of additional lands. This would partially offset the advantages of municipal ownership of the site;
- distance from related commercial facilities which would derive economic benefit from the stadium;
- relative inaccessibility by public transit, present or future;
- comparatively unattractive location in an industrial area, immediately adjacent to the Region's garbage transfer station; and near to a planned open scrapyard.

For these reasons, site #9 was considered to be the least suitable of the three potential sites for a new stadium.

In summary, Sites #2a and #9 proved less satisfactory as potential sites and Site #2 was retained as the most attractive for development of a new facility.

In addition, the option of expanding Ivor Wynne was also retained for conceptual design. It enjoys numerous advantages, not the least of which is the savings in capital costs compared to construction of a new facility. The stadium:

- is well located and accessible by car and transit, although it is not within the ICTS corridor;
- has a number of commercial facilities in proximity;
- is situated within a residential area whose population can benefit from the facility;
- maximizes the use of existing facilities, an important consideration in the context of the total investment required to develop both a stadium and arena/trade centre.

If the social and environmental impacts occasioned by the stadium could be mitigated through design and transportation policies, this alternative

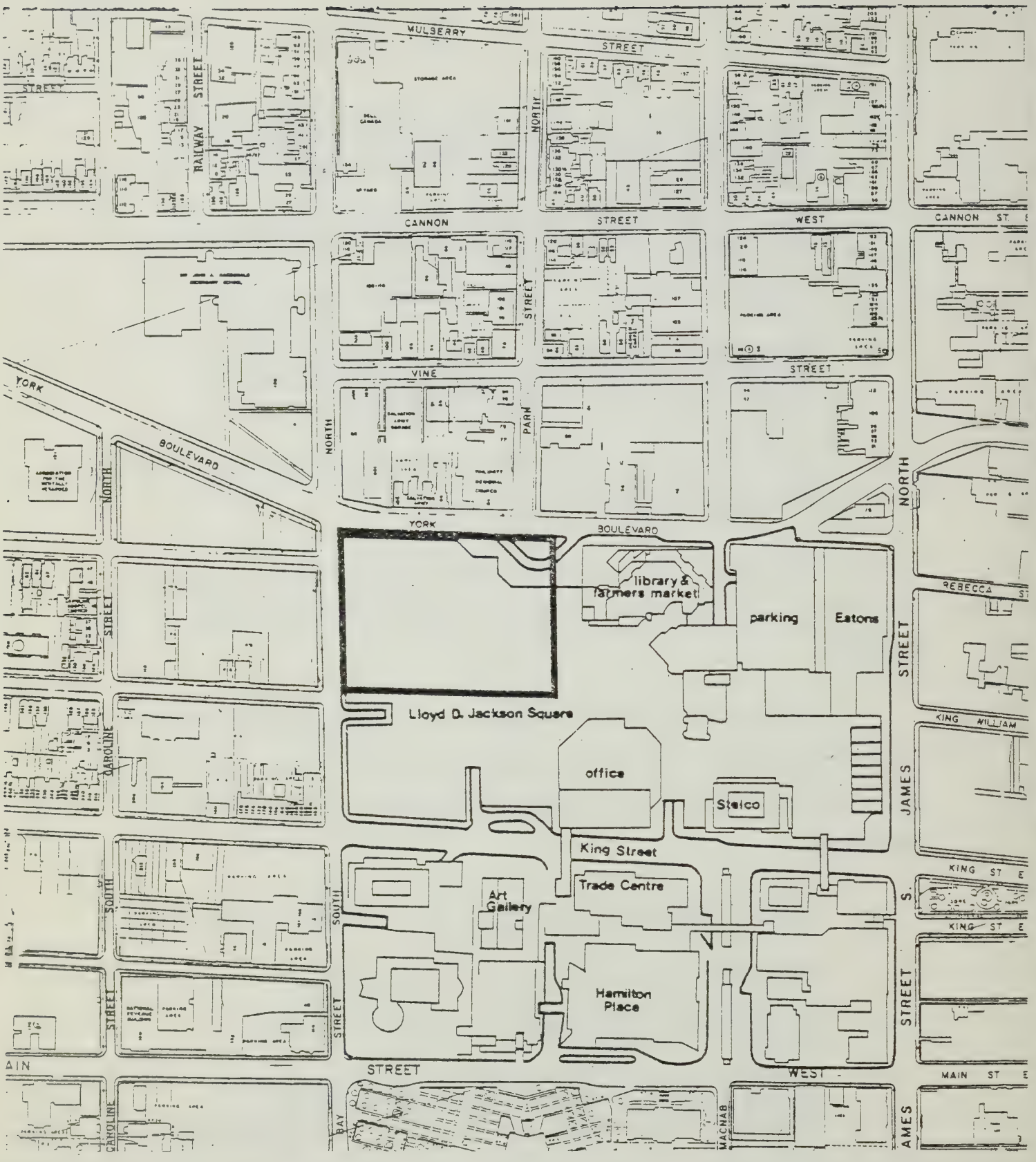


Exhibit
2E3

Site 6

Hamilton Stadium/Arena Feasibility Study IBI Group

would provide the most economical approach to achieving a stadium of major league calibre.

More details on each of the four potential stadium sites and the factors involved in the analysis are included in the following section.

4. DESCRIPTIONS OF SITES

In this section, more details are given concerning each of the seven potential sites for an arena/trade centre or stadium.

Arena/Trade Centre

Site #6

Site #6, shown on Exhibit 2E3, comprises Phase VI of the Jackson Square Redevelopment Plan and measures 173,652 square feet or 3.99 acres. It is presently zoned 'I/S-532', that is, Central Area modified by a special provision number 532. This special provision refers to by-law 77-204, which removed the minimum area and yard requirements, usually applicable in 'I' zones, for those lands falling within the Jackson Square Redevelopment Area. The land uses permitted in the areas designated 'I/S-532' are subject to the Jackson Square Redevelopment Plan. In the original plan, this site was proposed for residential use. However, Addendum #9 dated February, 1980, modifies the proposed uses, stating that: "Phase VI is reserved for such future residential, commercial and other uses in such sub-phases as the City may decide." Development of an arena/trade centre, which will be operated as a commercial enterprise will, therefore, be compatible with the commercial designation and no amendment to the redevelopment plan or the zoning by-law will be required. However, according to Section 3.05 of the Jackson Square Agreement, site plans and conceptual designs are subject to a review by the Review Authority, consisting of the City's Chief Engineer and his advisors.

Development of the arena/trade centre on this site would be very compatible with the other components of the Jackson Square Redevelopment Area. The facility would be immediately adjacent to a proposed office tower as well as a hotel, both of which will front onto King Street. Furthermore, the design of the facility could be such as to provide commercial facilities at street level, to ensure compatibility with adjacent uses and to provide an interesting facade to the street. The Redevelopment Plan presently indicates a proposed pedestrian overpass linking the Convention Centre on the south side of King Street with the proposed hotel on the north side. This could be incorporated into a pedestrian circulation route which would continue through the hotel to the arena/trade centre, thus maintaining a link between the trade and convention centres and assuring a continuity of use. No crossing of north-south arterials would be required.

Development of the arena/trade centre facility on this site would essentially complete the Redevelopment Plan and would be compatible with other uses in proximity. To the east, within Jackson Square, is the newly constructed Central Library and Farmer's Market as well as retail and office use. On the south side of King Street to the west of the Convention Centre is the Art Gallery and the Board of Education for the City of Hamilton. These areas also fall within the Redevelopment Plan. To the north of the site, across York Boulevard there is a new small Royal Bank building, a Salvation Army building and the Philipott Memorial Church. Other land uses to the north of the site include a mixture of light industrial and residential uses as well as a number of vacant lots used for parking. The land to the west of the site across Bay Street is essentially vacant except for a number of retail establishments along King Street and a modern apartment block at the corner of Caroline and Market Streets. This whole area to the west, which includes

Site #7 of this analysis, is designated in the Central Neighbourhood Plan for redevelopment to high density commercial and apartment uses. Should Site #6 be developed for the arena/trade centre, consideration might be given to the possibility of removing the residential component of this designated land use, in order to create a commercial-only transitional zone between the arena and the residential areas to the west.

The central location of Site #6 within the City and in fact the core, places related facilities and services in close proximity, thereby enhancing the probability of economic spinoff benefits from the facility. At the same time, development of the arena/trade centre on this site would conform with the policies enunciated in the Central Area Plan. Specifically, paragraph 9 of the policies concerning Building Design states:

> "new buildings proposed on prominent sites will receive special design considerations in order to fulfil their key contribution of landmarks. For example, the termination of York Boulevard should be developed as a landmark projecting the central area's desired image to persons entering the City."

Development of the arena on this site at the point where York Boulevard changes alignment and near its termination at James Street, would indeed provide the landmark envisaged in the Central Area Plan.

Site #6 also enjoys other considerable advantages, one of the most important being its present ownership. According to the Jackson Square Agreement, the City of Hamilton owns the property in partnership with the Provincial Government and the Canada Mortgage and Housing Corporation. A nominal fee of $1.00 per square foot would be charged to the Municipality if it decided to acquire the land for the arena/trade centre.

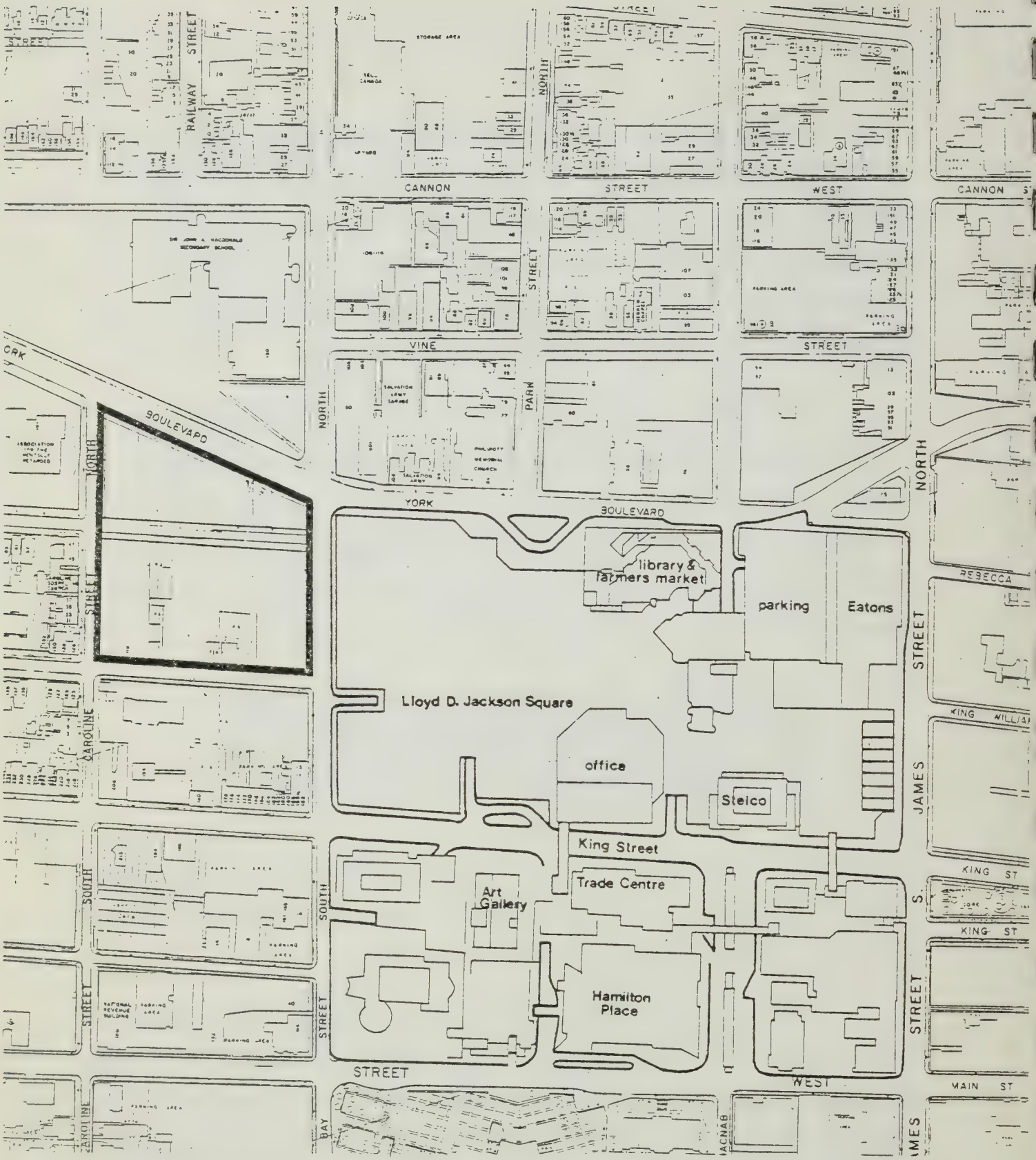


Exhibit
2E4

Site 7

Hamilton Stadium/Arena Feasibility Study IBI Group

Site #7

Site #7, shown on Exhibit 2E4, consists of two blocks bounded by York Boulevard on the north, Market Street on the south, and Caroline Street and Bay Street to the west and east, respectively.

The site measures approximately five acres, including the northern block which is entirely owned by the City, the block south of Napier Street, owned by one major developer, as well as the land comprising Napier Street which would be closed.

The entire site is zoned 'CR-3', high density commercial and residential; however the northern portion of the site is subject to special provision number 481. This refers to the regulations contained in the York Street development guidelines, which establish setbacks and height limitations for lands abutting York Street. However it should be noted that a zoning amendment or modification would be required to permit the development of an arena, and the York Street guidelines would probably be subject to modification in the context of a suitable design.

Site #7 is located west of the Jackson Square Redevelopment Area and is surrounded by a variety of land uses. Site #6, described earlier, is immediately east of this site, across Bay Street. The rest of the Jackson Square Redevelopment Area lies further east and south of Site #7. On the north side of York Boulevard is the Sir John A MacDonald Secondary School, and to the east lies a mix of light industrial, commercial and residential uses. The block immediately south of this site is partly occupied by a high rise apartment block with small retail establishments along King Street. Finally, to the west of the site is an area of housing in relatively poor condition as well as a school for the mentally retarded.

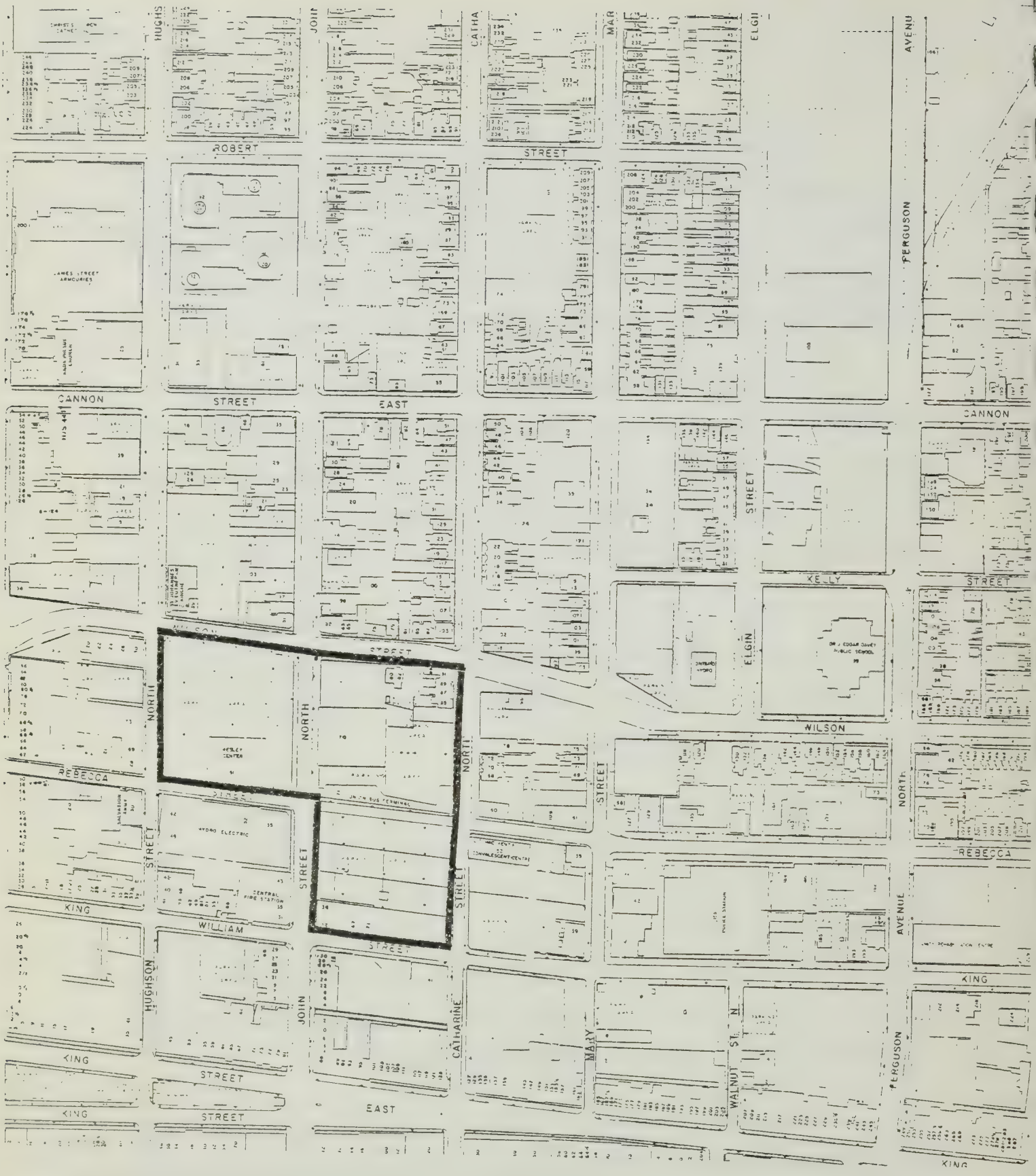
The whole area comprising Site #7 and its adjacent land uses, with the exception of the two schools, has been designated for redevelopment in the Central Neighbourhood Plan. The area to the south of the site has been designated for mixed commercial residential use while high-rise apartments are envisaged to replace the existing area of run-down housing to the west.

Development of an arena/trade centre facility on this site would be compatible with the existing and proposed land uses in the immediate vicinity, although it may be advisable to change the high density apartment designation immediately adjacent to this site, to a 'CR-3' commercial/residential zone which would ease the transition from the arena to the adjacent residential uses.

In general, the site would be suitable for the development of an arena/trade centre, and might in fact hasten the redevelopment of the adjacent area. However there are certain problems inherent in its development for the facility which must be considered.

Firstly, a zoning amendment or modification would be required to the existing 'CR-3' zone. At the same time procedures for closing Napier Street would have to be followed, including the passing of a by-law to that effect. Closing the street would also entail costs of relocating the services underneath it. The design of the facility would have to incorporate some provision for pedestrian access across Bay Street, linking the arena/trade centre with Jackson Square and ultimately the Convention Centre.

The presence of the warehouse fronting along Caroline Street, which houses the Canada Post operations poses another drawback to development of this site. This building is in very good condition and its demolition would be premature. It has not proven feasible to design the arena around the facility,



Exhibit

2E5

Site 18

Hamilton Stadium/Arena Feasibility Study IBI Group

as this would substantially reduce the acreage available on this site.

Another major drawback to development on this site is the fact that a large proportion is owned by private interests. Estimates of land cost for this site range from $20 to $27 per square foot resulting in a total cost of $2.6 to $3.5 million for the additional acreage required. This constitutes a considerable expenditure in comparison to that required for Site #6.

In summary, although Site #7 would be suitable for development of an arena/trade centre which would be compatible with existing and proposed land uses, it suffers from certain disadvantages which make it less desirable and economical than Site #6.

Site #18

Site #18 occupies three city blocks in an "L" shape between Wilson and King William Streets to the north and south, and Hughson and Catherine Streets to the west and east respectively and is illustrated in Exhibit 2E5. The site comprises a total of 7.5 acres. However, the shape of the entire site is not appropriate for construction of the arena/trade centre, and only two of the three blocks would be required. For a variety of reasons, it was decided to eliminate the most westerly city block (between Hughson and John Street) in favour of the two remaining blocks. These reasons include:

- difficulty of closing John Street North which is a major road within the downtown and is designated as such in the Central Area Plan;
- private ownership of a large portion of this block, as opposed to the block between Rebecca and King William Streets which is largely municipally owned;

- presence of the Wesley Centre on the southwest corner of the block. This centre is owned and operated by the United Church of Canada and provides social services and community operated activities as well as accommodation for transients. The building is in good condition and its demolition would not be recommended.

With the elimination of this block, the site remaining under consideration comprised the two blocks between Wilson and King William Streets and John and Catherine Streets. The northern half of the site is essentially vacant, a major portion of which has been cleared and is presently for sale. Along Wilson Street, the only existing structures are one house which is vacant and boarded up and another which is for sale. There are three other homes at 85, 87 and 89 Catherine Street, two of which are owned by the same family. The Canada and Grey Coach Bus Terminal is located in the middle of the site on the north side of Rebecca Street. The company has expressed a desire to relocate or redevelop but is awaiting a decision from the Intermediate Capacity Transit Service (ICTS) study with the hope of relocating in conjunction with a transit station. The block to the south of Rebecca Street is owned to a large extent by the Municipality and operated as a parking lot. On the south-southernmost part of the site is a large restaurant which appears to be in good condition.

The northern and southern blocks within the site are zoned 'J' and 'I' respectively. The first is a light and limited heavy industrial zone which would permit construction of the arena/trade centre. The 'I' zone, however, would not be suitable and would require amendments or modifications. The site is designated for commercial use in the Wesley Neighbourhood Plan, which would therefore, not be compromised by development of an arena. The areas immediately adjacent to the site are slated for the most part for

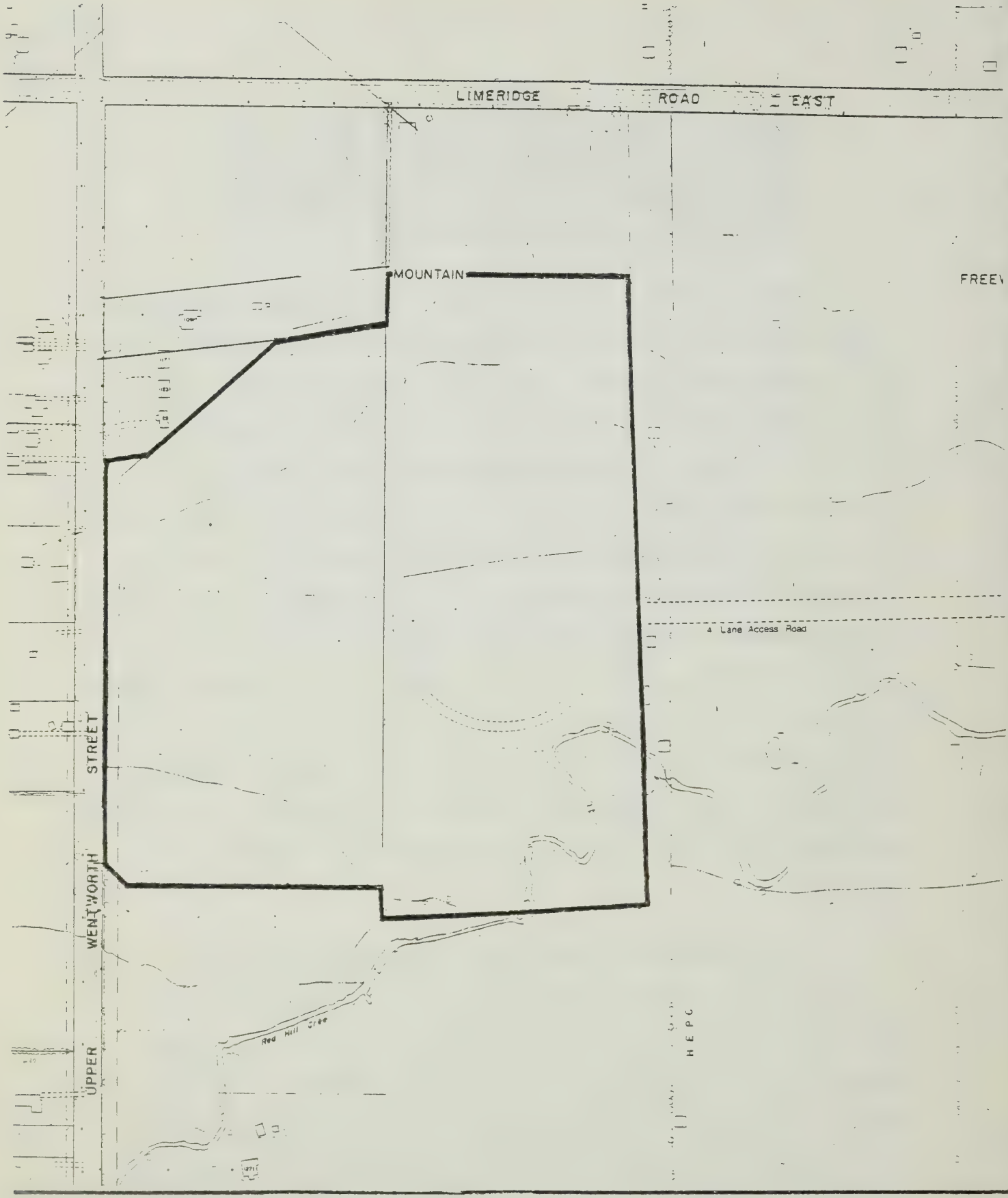


Exhibit
2E6

Site 2

Hamilton Stadium/Arena Feasibility Study IBI Group

At the present time, adjacent land uses consist primarily of light industrial and commercial use, with some residential development to the north. The arena/trade centre would not conflict with these uses, with the notable exception of the MacKenzie Convalescent Home at the corner of Rebecca and Catherine Streets. It is very likely that patients of the home would be disturbed by noise and activities centred on the arena.

The most serious drawback of site #18 for the arena/trade centre is its distance from the Convention Centre and the proposed hotel and its separation from these facilities by John Street. Although the site may be within walking distance of these other facilities, the intervening land uses have no relation to the arena or Convention Centre and a pleasant and convenient pedestrian link would be difficult to develop. Use of the Convention Centre and the arena/trade centre in conjunction with one another would become awkward. Furthermore, the lack of related retail services in the immediate vicinity of site #18 would reduce the potential for economic spin-off from the centre.

These factors, in addition to the fact that considerable expenditure would be required to acquire the site, make site #18 the least desirable of the three downtown sites, and it has, therefore, been eliminated from further consideration.

Stadium Site #2

Site #2, a potential stadium site, is located on the south side of the proposed Mountain Arterial, opposite the sub-regional shopping centre presently under construction. This site, as shown on Exhibit 2E6, occupies approximately 40 acres designated for Park and Recreational uses in the Rushdale

Neighbourhood Plan. Twenty acres of this park belong to the City of Hamilton while the remaining acreage belongs to the Ontario Land Corporation which also owns the majority of the remaining land in the block between Upper Wentworth Street and Upper Sherman Avenue south of Limeridge Road East. The O.L.C. has entered into an agreement with the City whereby it has agreed to deed the land for the park at a total cost of approximately $130,000 as part of its 5% parkland dedication relating to development of adjacent lands.

Development of the stadium on this site would require a zoning amendment from the present designation of 'AA' Agriculture and 'A' Conservation Open Space, Park and Recreation to a suitable zone, either 'J', 'K', or 'M-13'. However, the proposed use would conform to the Recreational use intended for the site, even though the exact nature of recreational use would differ somewhat from that originally envisaged.

At the present time, the area adjacent to the site on the south side of the proposed Mountain Arterial is relatively undeveloped, with only a few single family homes in the vicinity. On the north side of Limeridge Road, more extensive residential development has taken place and the sub-regional shopping centre is presently under construction. There is also a Legion Hall on the west side of Upper Wentworth, opposite the shopping centre.

The Rushdale Neighbourhood Plan designates most of the land around Site #2 for residential development, primarily low density single-family and two-family accommodation. However, since this area is as yet undeveloped, there remains enough flexibility to design the stadium in such a way as to mitigate potential impacts on surrounding residential development. The stadium might well be buffered from residential development to the south by intensive planting,

for example. Furthermore, the hydro-electric easement along the easterm edge of the site would protect the residential areas to the east from the impact of the stadium. In this way, the stadium might be isolated from the residential uses adjacent and would, therefore, not conflict with them. At the same time, the stadium would be accessible to the resident population which could make use of the facility. However, it should be noted that a certain amount of additional land may have to be acquired from the O.L.C. in order to have sufficient on-site parking and permit adequate buffering.

Location of the stadium on this site would complement the sub-regional centre to the north and would strengthen the sub-regional node designated in the Hamilton-Wentworth Regional Official Plan. The site enjoys good road accessibility and will benefit from road improvements made to service the shopping centre. In addition, it may be close enough to the future Intermediate Capacity Transit Service line to permit either direct service to the site, or a linkage via special bus routes.

Site #2a

Site #2a was proposed for analysis subsequent to completion of the Phase 1 evaluation of potential sites. Preliminary analysis indicated that it had potential for development of the stadium, as it shared many of the advantages of Site #2 and it was therefore carried forward into this more detailed analysis.

The site comprises approximately 40 acres in the Thorner neighbourhood. It is situated adjacent to the sub-regional shopping centre and north of Site #2 and the proposed Mountain Arterial.

The site is designated Residential in both the existing and the proposed Official Plan for the City of Hamilton. Consequently, a change in

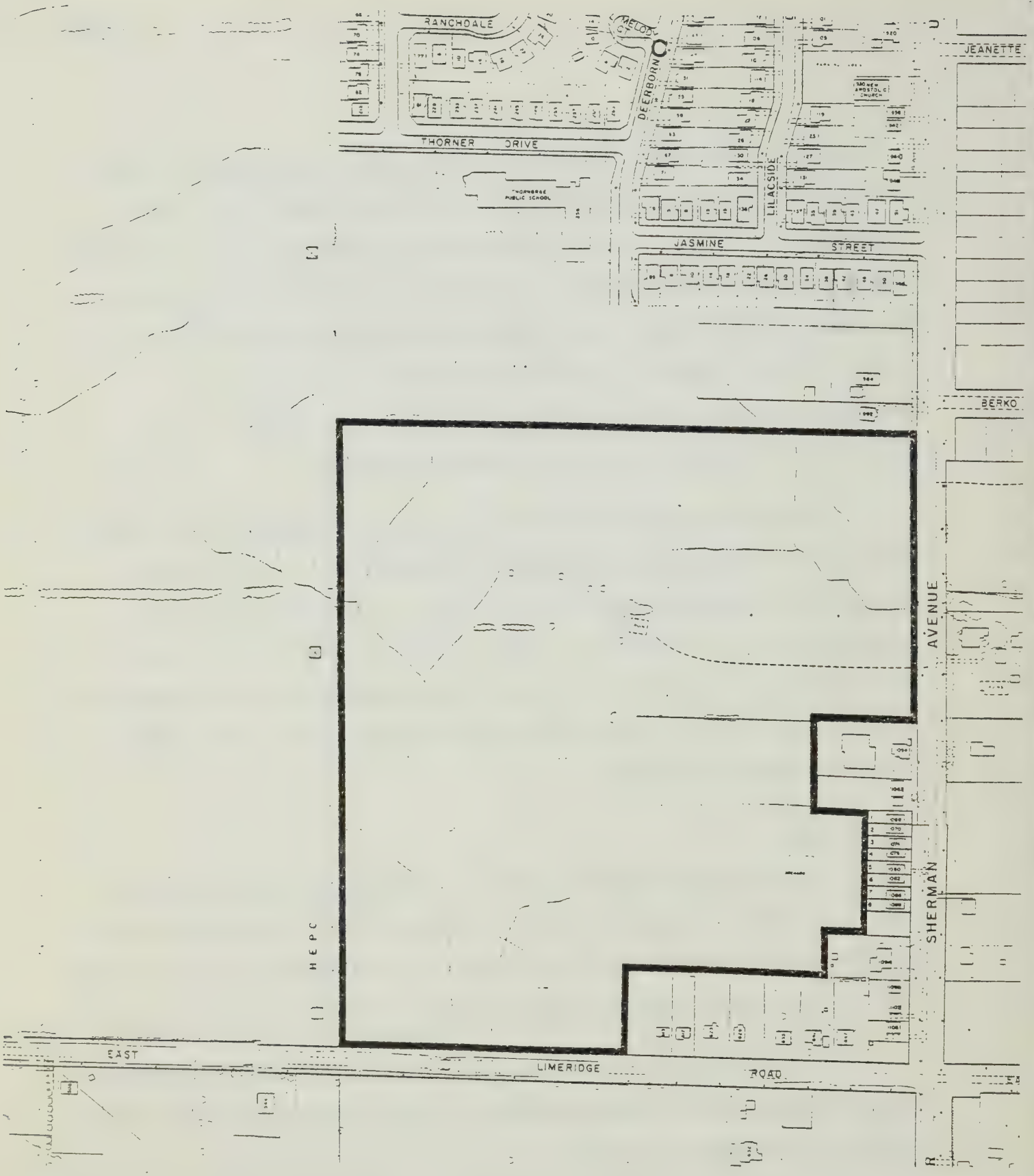


Exhibit
2E7

Site 2a

Hamilton Stadium/Arena Feasibility Study IBI Group

designation to Recreation, Civic and Cultural in the present Official Plan and to Open Space in the proposed Official Plan would be required.

The Thorner Neighbourhood Plan designates the majority of the land for low density residential development, with provision for attached housing along the western edge of the site, adjacent to the hydro-electric power easement. In the northern part of the site, land has been set aside for a park, adjacent to a public school.

Zoning on the site ranges from 'RT' Row Town Housing, 'D', Single Family Residential, 'C', Single and Row Family Residential, to 'AA', Agricultural. Consequently, zoning amendments would be required to permit construction of the stadium. The site shares many of the advantages attributed to Site #2 and its development would open up the possibility of having in this vicinity both the stadium as well as the park originally envisaged on Site #2. It also enjoys the potential benefit of close proximity to the shopping cnetre, which would make stores and parking more accessible to stadium patrons.

Unfortunately however, developers of the adjacent shopping centre have indicated their strong opposition to location of a staidum on Site #2a, and their reluctance to share parking facilities. They fear that removal of the site from residential development will cut into their primary market and reduce trade. In this respect, Site #2 which was never designated for residential development, would be more acceptable. Although it may be argued that the population which would be lost from Site #2a would only constitute a small proportion of the shopping centre's overall trade, the concerns of this major landowner, who has considerable sums invested in his property and who relied on the Official Plan designations on the adjacent lands, must be recognized.

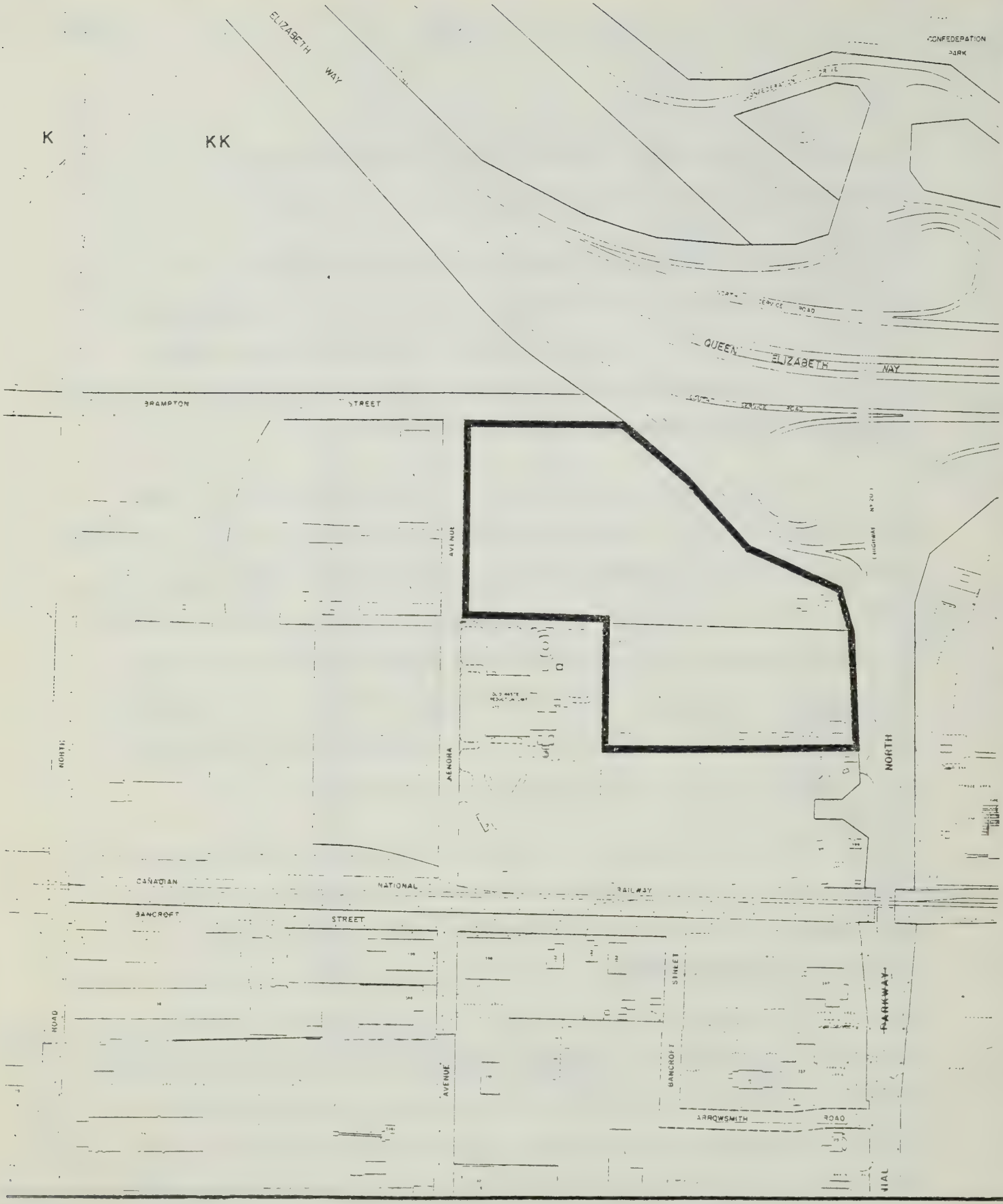


Exhibit
2E8

Site 9

There are certain other problems inherent in this site, most notably the presence of residential development fronting on Limeridge and Upper Sherman Roads. Designing the facility around these homes may be feasible, but protecting the residents from impacts associated with the stadium would be more difficult than in Site 2, where design of the facility would precede residential development and adequate buffering could more easily be incorporated into the site planning.

Finally, development of the stadium on Site #2a would entail the assembly of the various parcels of land. The cost of acquistion is estimated to be $50,000 per acre. This would increase the necessary expenditures considerably above those required for Site #2 where a substantial portion of the land is already in municipal ownership.

In summary, the analysis of Site #2a has shown that its advantages are not clear enough to compensate for potential problems inherent in development of this site and it has therefore been eliminated in favour of Site #2.

Site #9

Site #9, shown on Exhibit 2E8 occupies 19.5 acres along Centennial Parkway South, and is entirely owned by the City of Hamilton. The site is zoned 'KK/S 240' which is a restricted heavy industrial designation. It is an industrial area and is immediately adjacent to the Regional Municipality of Hamilton-Wentworth's Solid Waste Reduction Unit. The General Concrete Company's plant is located on the west side of Centennial Parkway. This company recently went bankrupt, and no other company has as yet resumed commercial operations there, although some negotiations have apparently taken place. An open scrap yard is expected to commence operations in this area shortly and immediately adjacent to the south of the site the Region operates a garbage transfer station.

In general, the adjacent land uses are light industrial and commercial in nature and would not be incompatible with a stadium. However, environs of the site cannot be regarded as attractive, and as the commercial facilities are not of the type to serve the patrons of the stadium, the potential for economic spill-over is minimally reduced. Furthermore, the site is quite removed from major residential areas and is not readily accessible for community use.

Although the site is adequate for the construction of the stadium, one of the greatest problems is inadequate space for on-site parking. Additional land for parking will be required elsewhere. A site of 22 acres, owned by the Ministry of Transportation and Communications is located to the northwest of Site #9 and may eventually be available for acquisition. However, it appears that this site will only be offered to the Municipality after construction of the Red Hill Creek Freeway at which time the Ministry will know exactly how much land will remain. Officials of the City of Hamilton's Real Estate Department have estimated the current value of the land at $70,000 per acre.

The site also suffers from a relative lack of accessibility by public transit, present or future, and is outside the corridor under examination for the Intermediate Capacity Transit System (ICTS). The transportation analysis (Appendix 1F)further indicates that considerable expenditures would be required to provide adequate access onto the Queen Elizabeth Way.

In summary, although Site #9 has the advantage of complete municipal ownership, there are significant drawbacks to the site which make it the least suitable of the other potential stadium sites, and it has also been eliminated from further consideration.

Exhibit

2E9

Site 8

Hamilton Stadium/Arena Feasibility Study IBI Group

Site #8

Site #8 is the site of the existing Ivor Wynne stadium, which was built in 1929 for the first British Empire Games. In 1961 it became the home of the Hamilton Tiger Cats and has continued in this role for almost 20 years. At the same time, the stadium is available for use by the community for a large proportion of time.

In this analysis, the feasibility of renovating the stadium to permit the addition of 8,500 seats to the existing structure has been evaluated. As this facility is already in place it enjoys several advantages:

- it is municipally owned and would therefore not require aquisition of additional land;
- services are in place;
- since no additional land would be required for the expansion,few new land use impacts would be created.

There are, however, a number of important planning considerations which must be taken into account. In 1976, zoning By-law 76-205 pertaining to the Stipely Neighbourhood was approved by the OMB. Among other things, it replaced the stadium's previous 'D', Urban Protected Residential classification with an 'A' classification in recognition of the predominant recreational and community use notwithstanding the fact that Ivor Wynne stadium had been the home of the Tiger Cats for 15 years. Furtheremore, Council has, to clarify its position, passed zoning By-law 80-131,[1] which permits:

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[1]By-law 80-131 amended By-law 79-333 which permitted:

"a) a stadium operated as a public use and commercial uses accessory to the stadium; and

b) buildings and structure existing at the date of the passing of this by-law."

By-law 80-131 amended this by-law by replacing only the provisions contained in Clause (a).

"a) a stadium operated for public and commercial purposes and commercial uses accessory to the stadium".

This By-law is now before the OMB and a hearing has been set for October 1, 1980. However, in that the extent of commercial use proposed in this study is only at the level that has been experienced over the active life of the stadium, it will continue as a predominantly Recreational and Community use, and hence no By-law change would appear to be necessary. However, to permit the construction of the new seats it would be necessary to obtain a minor variance to approve exceeding the height limitation specified for "A" categories in By-law 6593. This would be the case irrespective of whether the new zoning By-law is approved or not. However, it should be noted that the status and interpretation of the zoning of Ivor Wynne should be reviewed after the OMB renders its decision.

It should be noted that the expansion would occur in the centre of the complex and would involve increasing the height rather than the land area. However, as the size of the Brian Timis soccer field to the south of the stadium exceeds the standard requirements for this type of field, it will be reduced somewhat in order to allow the expansion of the existing parking area adjacent to it. At the same time, however, it is proposed to provide new bleachers facing the soccer field, which will incorporate new changing room facilities for soccer players and a sheltered seating area for users of the small park at the corner of Cannon Street and Balsam Avenue. In general, the actual change in land use on the site and the consequent impact on residents of these land use modifications will be minimal.

However, the increased patronage of the stadium would potentially increase traffic and parking problems, already the subject of complaints by residents. Consequently, policies to reduce this impact would be desirable. For example, implementation of increased bussing from strategic areas in the City may well reduce the traffic congestion and the inconvenience to residents of on-street parking. A further policy decision to prohibit parking on the baseball diamond south of Cannon Street would preserve the quality of the field, which presently suffers damage caused by cars parking on rainy days. This would ensure that the playing field be maintained in good condition for use by the residents. It is important that policies be considered to alleviate the conditions which are currently causing residents concern, as well as mitigate future impacts.

Furthermore, in designing and refurbishing the existing stadium, the relation of the facility to the surrounding residential uses should also be considered. Residents of the surrounding area appear to take great pride in their homes which are very well maintained. The stadium should complement the adjacent streetscape and provide a focal point for the area. Methods of improving the existing facade of the stadium, which at the present time offers only unattractive blank walls to the adjacent land uses, should be incorporated if possible into the design of the renovated stadium.

In summary, an expansion of Ivor Wynne Stadium offers an attractive and economical alternative to construction of a new facility. However, it is important that the social costs to local residents be weighed against the economic and other benefits; and that methods of mitigating both existing and future impacts on area residents be developed.

STADIUM/ARENA FEASIBILITY STUDY

APPENDIX 2F

ENGINEERING SITE ANALYSIS

APPENDIX 2F

SITE SERVICING STUDY

1. INTRODUCTION

The purpose of this study is to examine the more likely sites:

- Site No. 6
- Site No. 7 — ARENA
- Site No. 18

- Site No. 2
- Site No. 9 — STADIUM
- Site No. 8

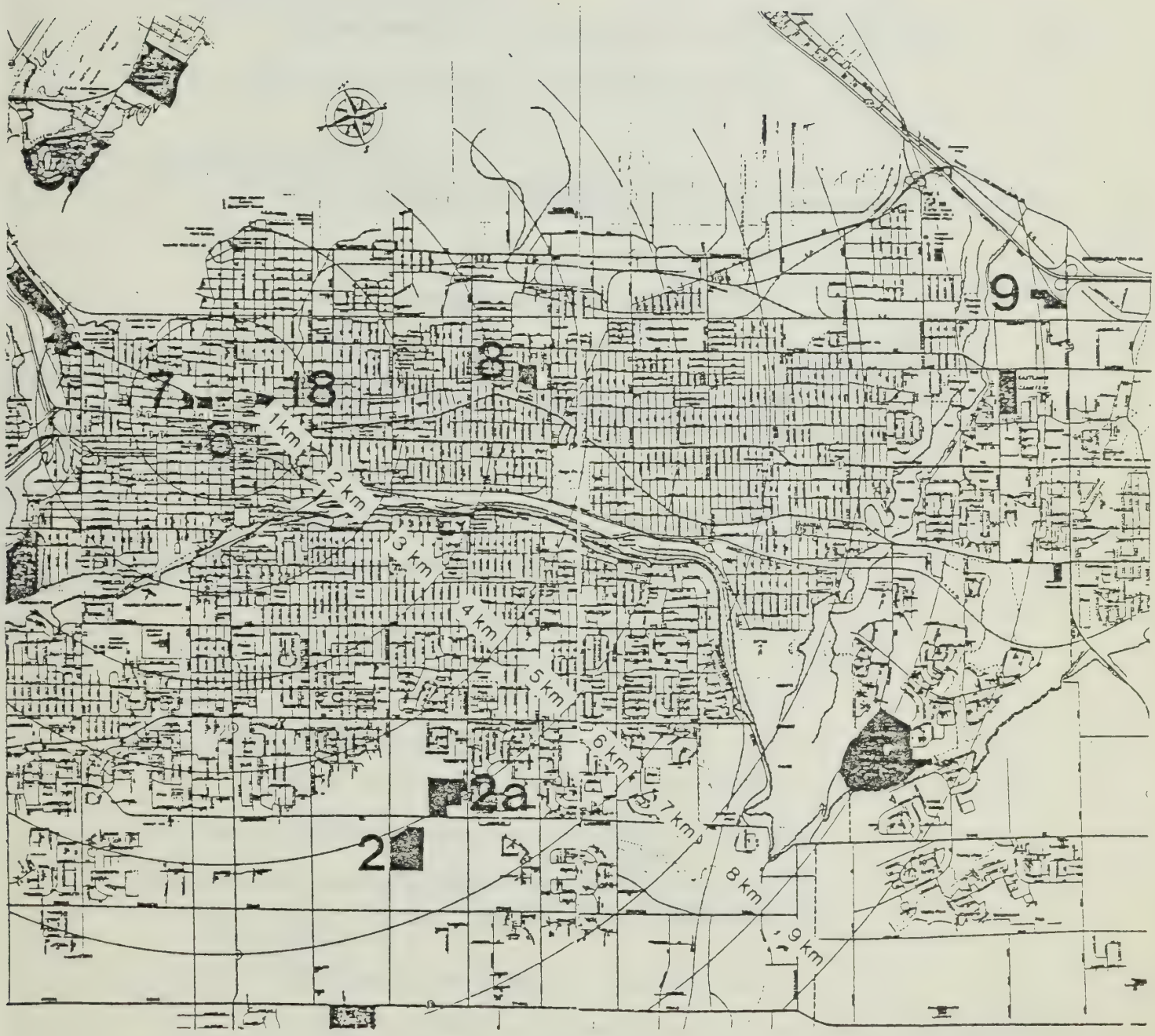
for the generated sanitary and storm flows and water demand; to assess the capacity of the existing sanitary storm and water systems to convey the additional flow requirements of the proposed facilities; to make recommendations as to the upgrading of the existing system, or to propose new work, and to estimate the cost of any work proposed.

2. LOCATION

The locations of the sites mentioned above are indicated on Exhibit 2F1.

3. GEOLOGY

At present no stratigraphic sections are available for each site. It is therefore impossible to give specific information as to soil types. In general though, the lower area of Hamilton consists of a sandy till overburden approximately 40 feet thick overlaying a silty clay. The regional water table is generally at an elevation of 250 feet (elevation of Lake Ontario). Perched water tables can be encountered at higher elevations, however. In the higher area of the city bed rock can be encountered from 2 to 12 feet below existing ground elevations.



Exhibit

2F1

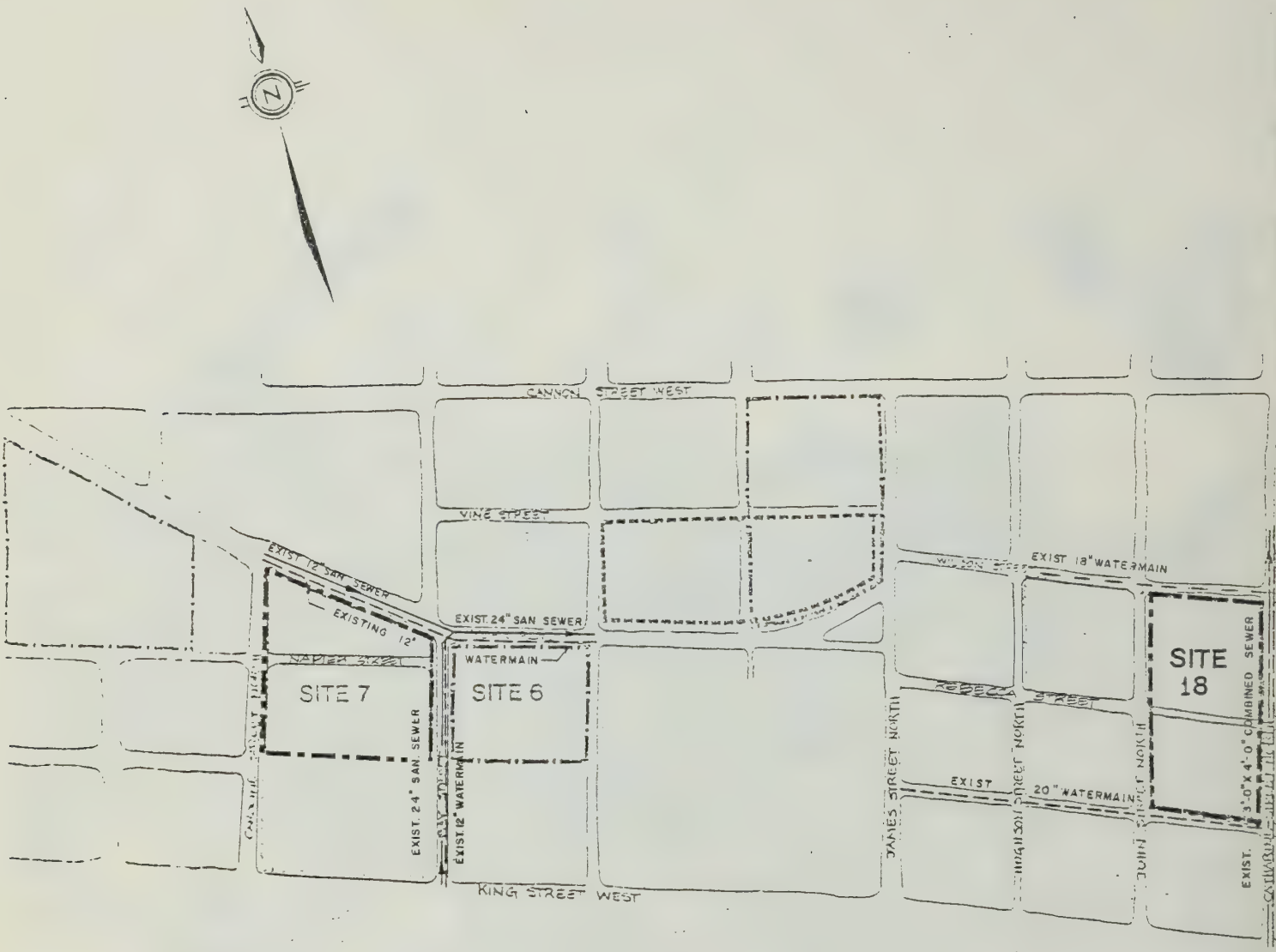


EXHIBIT 2F2

SITE SERVICING - SITE NO.S 6, 7 and 18

4. STORM WATER SERVICING

City of Hamilton officials have stated that storm water servicing will not be a problem at any of the interested sites.

5. DESIGN PARAMETERS

The following design assumptions have been derived from the City of Hamilton Engineering Department:

- Water Consumption - 0.02 igpm/person
- Fire flow - 3,000 - 5,000 igpm
- Sewage flow - 0.02 igpm/person

Further design assumptions are:

- Stadium seating capacity - 50,000 people
- Stadium sanitary/water design duration - 6 hours
- Arena seating capacity - 20,000 people
- Arena sanitary/water design duration - 8 hours

6. SITE ANALYSIS - ARENAS

The existing water/sanitary network adjacent to each site, and the measures proposed, have been discussed and agreed with the officers of the Hamilton -Wentworth Region Engineering Department.

6.1 Site No. 6

This site is indicated on Exhibit 2F2.

Sanitary - The existing sanitary main is probably below standard. However, the previous land use proposed for this site generated heavier flows, the Region has therefore intimated that they will accept this site as an arena.

Connection - Connect to existing 24 inch sanitary main on Bay Street.

Water - The existing static pressure of 65 psi is sufficient to meet daily demand and provide adequate fire protection.

Connection - Tap to existing 12 inch watermain in Bay Street or York Boulevard.

Costs - Service connection from building to points of tap.

- Total $70,000

6.2 Site No. 7

This site is indicated on Exhibit 2F2.

Sanitary - Similar conditions to Site No. 6.

Connection - Connect to existing 24 inch diameter sanitary sewer on Bay Street.

Water - Available pressure and capacity similar to Site No. 6.

Connection - Connect to existing 12 inch main on Bay Street.

Road Closure - Napier Street to be closed. Rerouting of existing 27 inch and 12 inch diameter combined sewers is necessary. Replace with 36 inch diameter combined sewer on Caroline and York Street to outfall into the existing 2.5 feet by 3.75 feet combined sewer at the intersection of York and Bay Street.

Costs - Cost of closing off sanitary and water mains on Napier Street. Installation of 720 feet of 36 inch diameter combined sewer, installation of manholes, rehabilitation of York and Caroline Streets.

- Service connections from building to points of tap.

- Total $270,000

6.3 Site No. 18

This site is indicated on Exhibit 2F2.

Sanitary - Similar conditions to Site No. 6.

Connection - Connect to existing 3 feet by 4 feet combined sewer in Catherine Street.

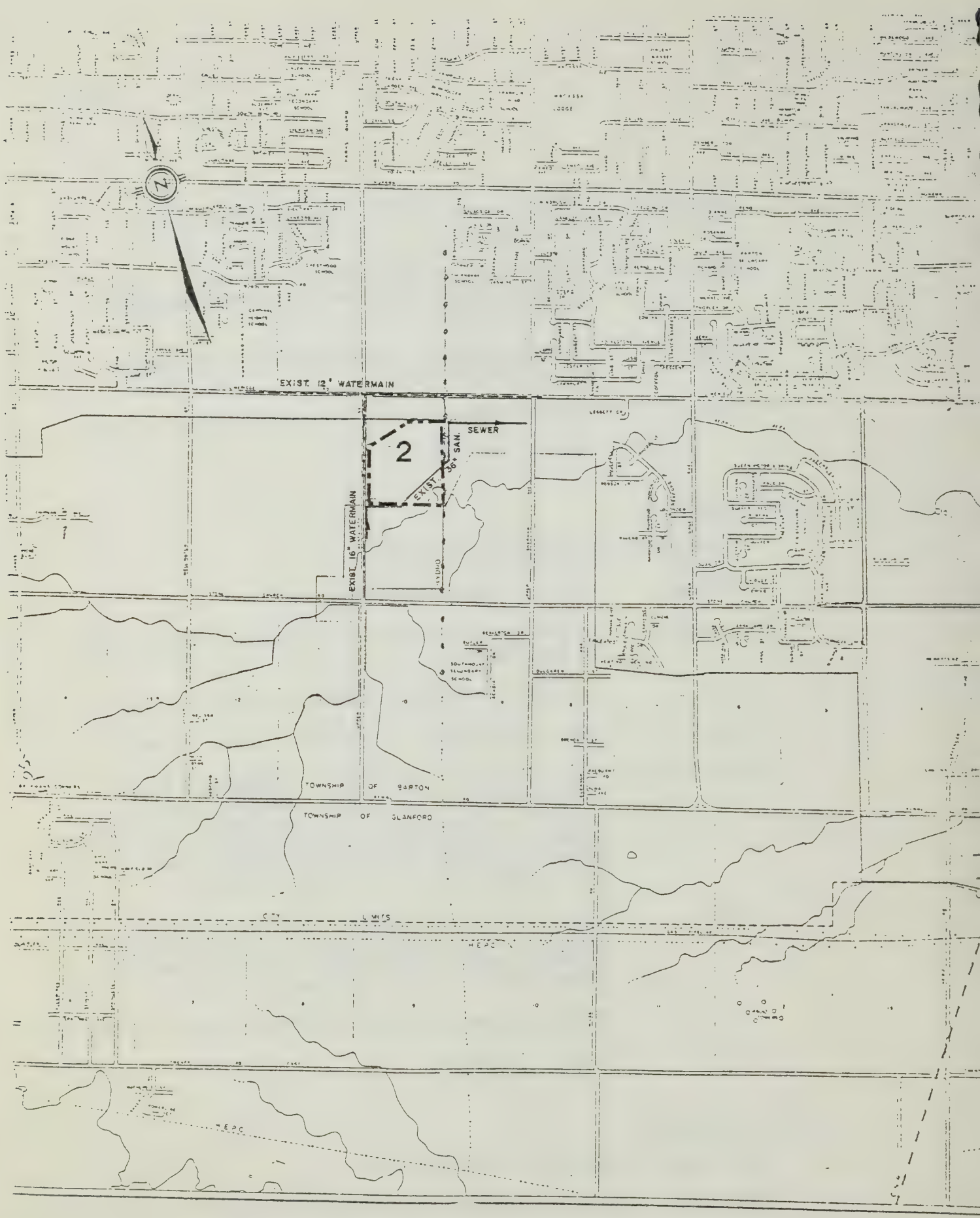


EXHIBIT 2F3

SITE SERVICING - SITE NO. 2

Water - The existing static pressure of 72 psi is sufficient to meet daily demands and provide adequate fire protection.

Connection - Connect to existing 18 inch diameter water main in Wilson Street or 24 inch in Catherine Street or 20 inch on William Street.

Road Closure - Rebecca Street to be closed. This necessitates rerouting of 15 inch diameter combined sewer in Napier Street to 18 inch diameter combined sewer in John Street.

Costs - Disconnecting sanitary and water mains in Rebecca Street, installing 18 inch diameter combined sewer in John Street, road rehabilitation.

- Service connection from building to point of tap.

- Total $70,000

7. SITE ANALYSIS - STADIUMS

The existing water/sanitary network adjacent to each site and the measures proposed have been discussed and agreed with the officers of the Hamilton-Wentworth Region Engineering Department.

7.1 Site No. 2

This site is indicated on Exhibit 2F3.

Sanitary - There is sufficient capacity in existing sewer system to accommodate flows generated by proposed stadium.

Connection - Connect to existing 36 inch sanitary sewer on southern boundary of site.

Water - The existing static pressure of 89 psi is sufficient to meet daily demands and provide adequate fire protection.

Connection - Connect to existing 12 inch diameter watermain in Limeridge Road or 16 inch diameter in Upper Went-Worth.

Costs - Service connections from building to points of tap.

- Total $172,000

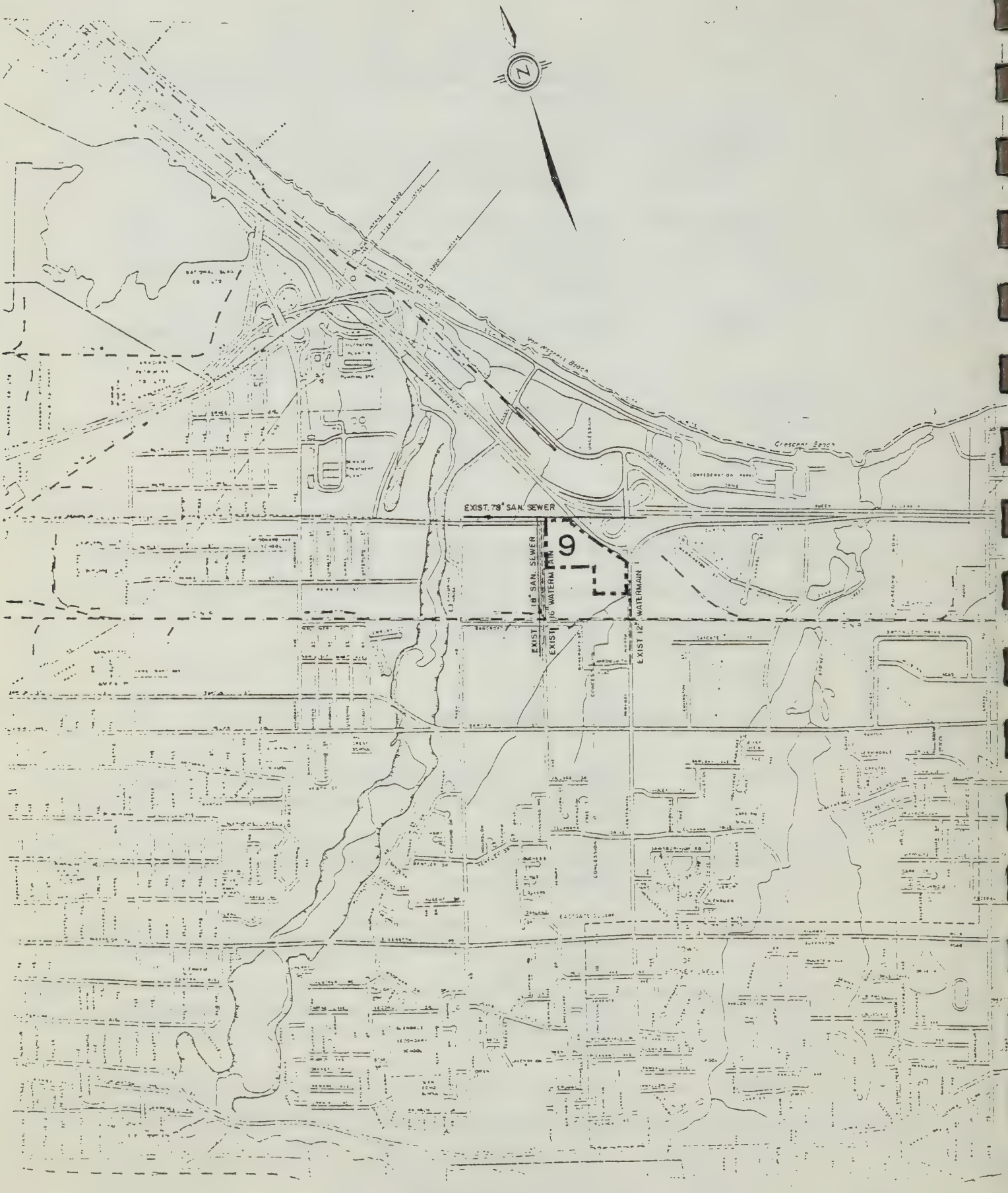


EXHIBIT 2F4

SITE SERVICING - SITE NO. 9

7.2 Site No. 9

This site is indicated on Exhibit 2F4.

Sanitary - There is sufficient capacity in existing sewer system to accommodate flows generated by proposed stadium.

Connection - Connect to existing 18 inch diameter sewer in Kenora Avenue.

Water - The existing static pressure of 73 psi is sufficient to meet daily demands and provide adequate fire protection.

Connection - Connect to existing 16 inch watermain in Kenora Avenue or 12 inch watermain in Parkway North.

Costs - Service connections from building to points of tap.

- Total $145,000

7.3 Site No. 8 - Improvements to Ivor Wynne Stadium

This site is indicated on Exhibit 2F5.

Sanitary - There is sufficient capacity in existing sewer system to accommodate flows generated by additional seats.

Connection - Connect to existing 36 inch diameter combined sewer in Beechwood Avenue.

Water - The existing static pressure of 61 psi is sufficient to meet daily demands and provide adequate fire protection.

Connection - Connect to existing 20 inch diameter watermain in Cannon Street.

Costs - Service connections from building to points of tap

- Total $42,000

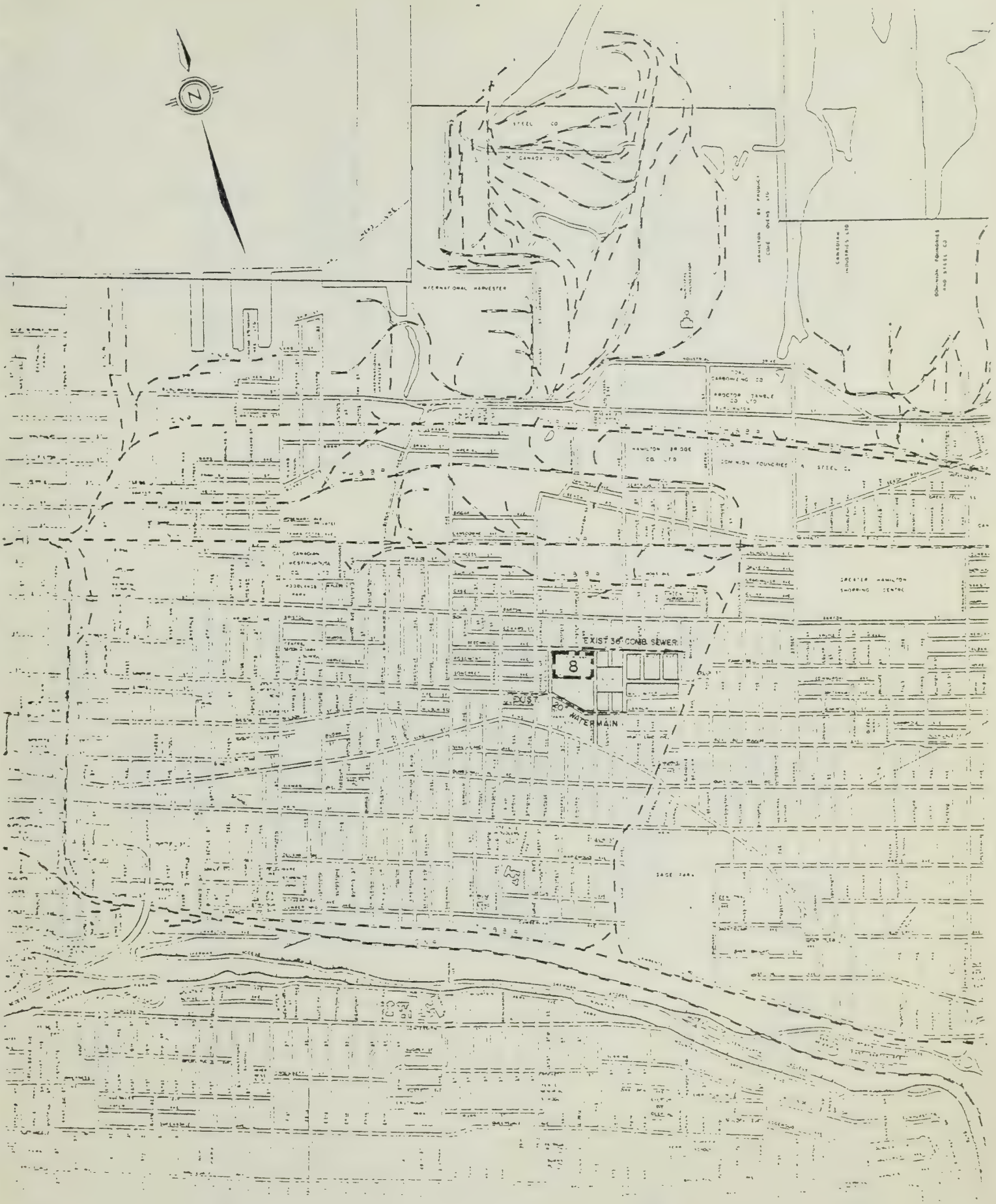


EXHIBIT 2F5

SITE SERVICING - SITE NO. 8

EXHIBIT 2F6

SERVICING SUMMARY TABLE

Building Type	Site No.	Sanitary Capacity	Sanitary Connection	Water Capacity	Water Connection	Road Closures St. Name	Road Closures Effect	Total Costs Amount	Remarks
	6	Region will accept Arena on present system	to 24 inch diameter, Bay Street	available static - 65 psi, system adequate for domestic consumption and fire	to 12" dia. in Bay St. or York Blvd.	-	-	$ 70,000	sanitary, water and storm services with connections to existing mains
ARENA	7	as above	as above	as above	as above	Napier St.	rerouting 27" and 12" dia. combined sewer to York and Bay St.	$270,000	rerouting sewers, closing off Napier St., road rehabilitation, sanitary, water and storm services with connections to existing mains
	18	as above	to 3'-0" x 4'0" combined sewer on Catherine Street	available static 72psi system adequate for domestic consumption and fire	to 18" dia. in Wilson St. or 24" dia. in Catherine St. or 20" dia in William Street.	Rebecca St.	reroute 15" dia. combined sewer to 18" combined sewer on John St.	$ 70,000	connection of 15" dia. to 18" dia. closing off Rebecca St., road rehabilitation, sanitary, water and storm services with connections to existing mains.
	2	sufficient capacity	to 36" dia. at south edge of site	available static 89 psi, system adequate for domestic consumption and fire	to 12" dia. in Limeridge Rd. or 16" dia. on Upper Wentworth	-	-	$172,000	Sanitary water and storm services with connections to existing mains.
STADIUM	9	sufficient capacity	to 18" dia. in Kenora Ave.	available static 73 psi system adequate for domestic consumption and fire	to 16" dia. in Kenora Ave. or 12" in Parkway North	-	-	$145,000	as above
	8	sufficient capacity	to 36" dia. combined sewer in Beechwood if needed	available static 61 psi, system adequate for domestic consumption and fire	to 20" dia. in Cannon St. if needed	-	-	$ 42,000	as above

8. CONCLUSIONS

A servicing summary table together with estimated costs is indicated on Exhibit 2F6. It should be borne in mind that although the volume of flows can be fairly accurately assessed, the positioning of the services within the site can only be arbitrary at this stage, therefore the costs involved can only be very approximate.

This is true for each site, therefore, the cost relationship is the same.

Arena Site No. 7 is the costliest by far due to the closure of Napier Street and the necessitated rerouting of the services. From a cost point of view there is no difference between the other two arena sites. Of the stadium sites, Site No. 2 is the costliest to service. Site No. 8 - Improvements to the existing Ivor Wynne Stadium - requires only the extension or upgrading of existing services and is of consequence the least costly of the stadium sites to service.

STADIUM/ARENA FEASIBILITY STUDY

APPENDIX 2G

TRANSPORTATION IMPLICATIONS OF PREFERRED SITES

PHASE 1 SITE SELECTION

As part of the Phase I review, a Transportation Impact Analysis was undertaken wherein the accessibility characteristics of some 19 selected potential sites for an arena and/or stadium complex for the City were reviewed. Three evaluation criteria were incorporated in this analysis. These criteria were:

- Modal Split; the degree to which the site can be serviced by transit,
- Parking Availability; is there sufficient off-site and potential on-site parking? and,
- Traffic Impact; the degree to which the road system can accommodate expected traffic levels.

From the transportation accessibility analysis in conjunction with the several other site evaluation analyses undertaken in Phase 1, it was determined with respect to preferred site selection that:

- no site was deemed suitable for a combined arena and stadium complex,
- the arena should be located at one of three downtown site locations, Sites # 6, 7, and 18 with further assessment required to identify a preferred site, and
- the stadium should be located at one of three site locations, Sites # 2, 8, and 9, with further assessment required to identify a preferred site.

Further detailed transportation analyses were deemed appropriate for the stadia sites since substantial differences in transportation impact were identified for each of the Sites # 2, 8, and 9. However, no such differences were identified in the Phase 1 transportation analysis for the arena sites. Accordingly, a detailed transportation impact analysis for the arena sites has not been undertaken in Phase 2.

In the Phase 1 transportation site evaluation analysis, conservative transportation and travel behavioural attributes were ascribed to each of the stadia sites examined. These attributes reflected the low level of modal split (proportion of tripmakers travelling by transit) and auto occupancies (persons per auto) currently exhibited by tripmakers travelling to and from football games and other special events at Ivor Wynne Stadium. These levels are less than 10% modal split and 2.5 auto occupancy.

Similar low levels of modal split were estimated for other stadium sites throughout the City as outlined in Exhibit 1 F4. This analysis also assumed a constant auto occupancy of 2.5.

The levels of modal split and auto occupancy assumed in Phase I were satisfactory for the systematic accessibility evaluation analysis undertaken in the initial phase of the study. This analysis simply required estimates of these variables which reflected the mean values for Ivor Wynne tripmakers and the likely variations in these values as a function of the geographic distribution of stadium sites and of the level of road and transit infrastructure.

PHASE 2 TRIPMAKER ATTRIBUTES

The analysis undertaken in Phase 2 of the study has refined the aforementioned levels of modal split and auto occupancy to reflect ranges of values for each variable. Modal split values have been established for choice and policy modal split conditions at each of the sites subject to further transportation evaluation.

Choice modal split conditions represent the situation wherein few or no contraints exist with respect to the use of the auto whereas current levels of service prevail for the transit mode. In the case of the auto,

adequate parking within close proximity to the site and sufficient roadway capacity to access this parking are assumed to exist to accommodate any level of demand. For the transit mode, existing levels of regularly scheduled transit service supplemented only by the existing number of charter buses currently serving Ivor Wynne Stadium and up to an equal number of extra trippers are assumed herein to be available to satisfy transit demand.

Policy modal split conditions represent the situation wherein the City embarks upon a program to substantially increase transit ridership by increasing the levels of transit service provided under choice modal split conditions by making available a sufficient number of extra trippers on existing routes or on a shuttle bus basis between the I.C.T.S. (Intermediate Capacity Transit Service) line and the site in question to achieve desired feasible levels of modal split.

Auto occupancies of 3.0-3.5 persons per auto have been assumed in this Phase II analysis. These occupancies, though generally higher than those currently observed for football games at stadia in Toronto and in Ottawa (2.1 and 2.6, respectively), are consistent with those observed at the PNE Stadium in Vancouver (2.9) and at several American stadia with occupancies ranging from 2.5 to 3.8 auto occupancies as noted in Exhibit 1F3, Appendix 1F. These higher auto occupancies are also consistent with a transit oriented policy in that some contraints on the availability of parking would be imposed if only sufficient parking to accommodate vehicle demand at these assumed auto occupancies at the appropriate modal split was provided.

ANALYSIS OF STADIUM SITES

In this analysis, the three preferred stadia sites identified from Phase 1 have been examined with respect to the required level, type and cost of transportation service for two modal split scenarios and for two levels of attendance.

Transportation service has been examined with respect to the supply of transit service, the provision of parking and the supply of adequate roadway capacity necessary to handle the additional levels of tripmakers generated by football game conditions.

The two modal split scenarios examined are the choice modal split condition and the policy modal split condition.

The two levels of attendance examined are 30,000 attendees and 40,000 attendees. The former level represents the lower bound on expected average attendance levels of 30,000-35,000 at football games and establishes the minimum necessary transportation infrastructure requirements. The 40,000 level of attendance represents a capacity crowd level at the stadium and thus the maximum transportation infrastructure requirements.

TRANSPORTATION SERVICE REQUIREMENTS

Site #8 (Ivor Wynne)

From the Phase 1 transportation assessment of the Ivor Wynne site, the provision of adequate amounts of off-street parking was identified as the major shortcoming of this site. Based upon the precedent set in 1971-1972 wherein the parking spaces at the Greater Hamilton Shopping Centre (G.H.S.C.) were used to provide off-street parking for football events, strong consideration was given to considering this parking option for an expanded Ivor Wynne facility. Two alternative parking options were also considered prior to the selection of a preferred parking option.

The three alternative parking options considered for this site were:

- acquire the necessary property and build a parking structure sufficient to handle the excess parking demand beyond that currently using on-street parking and existing off-street facilities;
- do not provide any additional parking beyond that presently provided thus requiring the additional patrons travelling by auto to an expanded stadium to find their own parking spaces beyond the standard 25 minute walk-in limit;
- utilize the surface parking spaces at the G.H.S.C. and provide a shuttle bus service between the G.H.S.C. and the stadium, utilize existing other off-street facilities, and where necessary permit on-street parking to accommodate the residual parking demand.

It is estimated that the current supply of parking that is regularly utilized by patrons at Ivor Wynne stadium is that lying within a 20-25 minute walk of approximately one mile from the stadium. Within this area, there are approximately 8,500-9,000 on-street parking spaces of which approximately 65% are utilized by local residents resulting in some 3,000 on-street spaces being utilized by stadium patrons.

A further 1,400 parking spaces are also available from private lots in the area (approximately 1,000 spaces) and from the use of Scott Park as a temporary lot (with a capacity of 400 spaces).

Based upon the aforementioned figures, it was concluded that generally (depending upon the assumed use of Scott Park) parking demands in excess of 4,000-4,400 parkers would have to be handled by the aforementioned alternative parking policies.

The first policy, that of acquiring the property and building a parking structure, was deemed not economically feasible. For an average attendance level of 30,000 patrons with a modal split of 10% and an auto occupancy of 3.0 persons per auto, a total of 9,000 parkers would have to be accommodated. Assuming 4,000 could be accommodated at existing facilities, a structure to handle 5,000 parking spaces would have to be built. The structural costs alone for such a facility could be in the order of $25M for an elevated structure assuming that sufficient property could be acquired. The property acquisition costs would be additional.

The second policy, that of requiring the additional parkers beyond 4,000-4,400 level that can presently be accommodated within a 20-25 minute walk of the stadium to park elsewhere, would result in demand for up to 5,000 additional parking spaces for the aforementioned example of 30,000 attendees and demand for up to 8,300 spaces should 40,000 patrons attend under such circumstances. All of these parkers would have to be accommodated at on-street and off-street lots well beyond the 20-25 minute walk-in limit. Such stadium access problems would act as a strong deterrent to stadium patrons and could

EXHIBIT 2G1

TRANSPORTATION IMPACT FOR SITE #8 (IVOR WYNNE) AS A FUNCTION OF MODAL SPLIT AND LEVEL OF ATTENDANCE

	TRAVEL DEMAND				SUPPLY OF TRANSIT SERVICE									SUPPLY OF PARKING AND ROADWAY ACCESS TO SAME						
	Modal Split		Person Trips by Mode (000's)		Auto(1)	Extg. Service			Extra Trippers			Shuttle Bus			Parking			Equivalent Arterial Lanes (in one direction)			
Attend.	Choice/ Policy	(%)	Transit	Auto	Vehicle Trips (000's)	No. of Buses	Avg. Buses /Hr.	Cap.	No. of Buses	Avg. Buses /Hr.	Cap.	No. of Buses	Avg. Buses /Hr.	Cap.	Location	No. of Spaces	Extg. or Add'l (2)	Extg. Lanes	Cap. (VPH)	Add'l Lanes	Cap. (VPH)
30,000	Choice	10	3.0	27.0	9.0	17	17	1275	12	24	1800	80	160	12000	On-street	3600	Extg	12	9600	0	0
															Private lots	1000	Extg	2	1600	0	0
															Scott Park	400	Add'l	2	1600	0	0
															G.H.S.C.	4000	Add'l	10	8000	0	0
40,000	Choice	10	4.0	36.0	10.3	same as above			18	36	2700	94	188	14100	On-street	4900	Extg	same as above			
															Private lots	1000	Extg				
															Scott Park	400	Add'l				
															G.H.S.C.	4000	Add'l				
30,000	Policy	20	6.0	24.0	8.0	same as above			32	64	4800	80	160	12000	On-street	3000	Extg	same as above			
															Private lots	1000	Extg				
															Scott Park	0	Extg				
															G.H.S.C.	4000	Add'l				
40,000	Policy	20	8.0	32.0	9.1	same as above			45	90	6750	94	188	14100	On-street	4100	Extg	same as above			
															Private lots	1000	Extg				
															Scott Park	0	Extg				
															G.H.S.C.	4000	Add'l				

(1) Occupancy is assumed to be 3.0 passengers/auto for an average attendance of 30,000 and 3.5 passengers/auto for attendance at the stadium capacity of 40,000.

(2) Extg = existing, and Add'l = additional which may be provided either by building a new lot or by renting an existing lot.

result in reduced levels of patronage below those which could be expected if adequate site access were provided. Further, there is inadequate off-street parking supply to handle the 5,000 autos resulting from an attendance level of 30,000 unless patrons were to park at the G.H.S.C. However, many of the spaces in the G.H.S.C. are a prohibitive walking distance from the stadium with the northeast parking spaces located more than 35 minutes walking time away from the stadium. For the 40,000 level of attendance parking supply at the G.H.S.C. would not be sufficient to handle the demand. Perhaps 2,000 to 3,000 additional on-street parkers would use the on-street parking supply beyond the 25 minute walk-in limit.

The second policy was dismissed on the basis that patronage would probably suffer because of the lack of adequate parking close to the stadium.

The third option, that of recognizing the demand to use G.H.S.C. as a major source of parking supply for the so-called residual parking demand outside of the 20-25 minute walk-in limit around Ivor Wynne and providing shuttle bus service to better utilize this source of parking supply, was selected as the only potentially feasible parking option for an expanded Ivor Wynne stadium.

The analysis undertaken to identify the level and type of transportation service implications of pursuing this third parking option at Ivor Wynne stadium is summarized in Exhibit 2G1 and discussed below.

Choice Modal Split of 10% with Attendance Level of 30,000

Transit

Transit operations would have to handle 3,000 riders plus shuttle 12,000 parkers between the Greater Hamilton Shopping Centre (G.H.S.C.) and the stadium.

Existing scheduled transit service consists of a Cannon Street and Barton Street route running approximately five buses each at average headways of 12 minutes per route during game conditions. A further seven charter buses typically run to and from football games.

A total of 12 extra trippers would be required to operate between the downtown area and the stadium running at 30 minute headways. Presently there are about seven extra trippers performing in this way.

The shuttle bus operations would involve 30 minute headways per bus at 75 passengers per bus. The number of additional buses required to provide the shuttle bus service between the stadium and the G.H.S.C. would be 80 buses.

Parking

The G.H.S.C. has approximately 4,000 parking spaces which could possibly be made available for stadium use.

From the 1976 City inventory of off-street parking around the stadium, 1,000 parking spaces were identified. A further 400 spaces can be made available at the Scott Park grounds (3.0 acres @ 145 spaces per acre = 435 spaces). The residual amount of 3,600 parking spaces may be handled by on-street parking.

It is estimated that within a 20-25 minute walking distance of the stadium there are approximately 3,000 on-street parking spaces available for stadium patrons. In order to handle 3,600 parkers on the street, 600 parkers would have to park further away than a 25 minute walk to the stadium.

Roadway Access

For an auto occupancy of 3.0 persons per auto and 27,000 driver plus passenger trips by auto, 9,000 autos would travel to the general vicinity of the stadium and park at the several parking locations identified above.

The roadway capacity of an arterial lane of road is approximately 800 vehicles per hour (VPH) per lane in one direction. In a cordon about the stadium and all parking areas except the G.H.S.C., there are approximately 32 lanes of roadway (16 lanes inbound and 16 lanes outbound) providing an inbound or outbound total capacity of 12,800 VPH which is more than adequate to handle the approximate auto demand of 5,000 VPH travelling to and from the parking areas within this cordon. The capacity by parking facility may be approximated by estimating the capacity accessing Scott Park and the private lots and assuming the residual is available to access on-street parking. Scott Park may be accessed from two lanes on Cannon Street. The private lots may be accessed by two lanes on Barton Street. This leaves 12 lanes or 9,600 VPH capacity for on-street parking.

There are 20 lanes of arterial roadway (10 inbound and 10 outbound) accessing the G.H.S.C.

Thus, no roadway improvements are required for the Ivor Wynne site.

Choice Modal Split of 10% with Attendance Level of 40,000

Transit

The modal split is assumed to be 10% as it was with an average attendance of 30,000. Extra trippers would be required to handle the 2,725 passengers per hour in excess of the 1,275 passengers per hour that can be handled by the existing regularly scheduled and charter bus services.

Additional numbers of shuttle buses beyond those identified for an attendance level of 30,000 patrons would be required because of the higher anticipated auto occupancies of the 4,000 cars parking at the G.H.S.C. A requirement would exist for the provision of 94 buses operating at two trips per hour each.

Parking

It is anticipated, based upon the experience of large capacity stadia in the U.S.A., that as the level of attendance at a stadium increases (without a corresponding increase in the number of on-site parking spaces) that the average auto occupancy increases. Typical auto occupancy factors in the U.S.A. range from 2.5 to 3.8 persons per car(1).

Herein, it has been assumed that with an increase in attendance from 30,000 to 40,000, that average auto occupancies would increase from 3.0 to 3.5.

The effect of this increase in both attendees and auto occupancies is to increase the number of vehicle trips by auto from 9,000 for a 30,000 level of attendance to 10,300 for a 40,000 level of attendance.

The effect on parking requirements would be to require the full use of the G.H.S.C., the private lots, and Scott Park as identified for the 30,000 attendees to provide 5,400 spaces plus the use of on-street parking to handle the 4,900 vehicles. Since only 3,000 spaces are available within a 25 minute walk of the stadium, a further 1,900 vehicles would have to park on-street beyond the 25 minute walk-in area around the stadium.

Roadway Access

Since the road infrastructure which already exists provides adequate capacity to each of the above parking areas, no further roadway improvements are required.

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(1) 1976 ITE Informational Report "Traffic Considerations for Special Events"

Policy Modal Split of 20% with Attendance Level of 30,000

Transit

Under this policy modal split scenario, there would be a substantial increase in transit service over that provided under the choice modal split scenario. This is expected to result in a doubling of transit riders from 3,000 to 6,000 between the two scenarios for a level of attendance of 30,000. As the existing service has assumed to remain the same, a further 32 extra trippers would be required to provide the additional transit capacity of 4,800 passengers per hour one way in order to handle the 6,000 transit patrons destined to/from the stadium.

The shuttle bus requirements, however, would be unaffected under this modal split scenario versus the choice modal split scenario since the numbers of autos parked at the G.H.S.C. would remain the same in each case.

Parking

As a result of the increased transit ridership, there would be a decrease in the required number of parking spaces from the 9,000 level of choice modal split conditions to 8,000 under policy modal split conditions.

The 8,000 parking spaces could be accommodated by utilizing the existing 3,000 on-street parking supply within 25 minutes walk, the existing 1,000 off-street parking spaces and the 4,000 spaces at the G.H.S.C. With a policy modal split of 20% for an attendance level of 30,000 patrons, there would be no need to use Scott Park for parking or to force the use of on-street or off-street parking spaces beyond the 25 minute walk-in limit with the exception of the G.H.S.C. which would be served by shuttle bus.

Roadway Access

As previously noted, no further roadway improvements are required.

Policy Modal Split of 40% with Attendance Level of 40,000

Transit

For the higher attendance level, extra transit service would be required beyond that provided for 30,000 stadium patrons. The extra service would be provided in the form of extra trippers and would be increased from 32 trippers for 30,000 attendees to 45 trippers for 40,000 attendees each making two trips before and after each game.

The shuttle bus requirements as identified for choice modal split conditions at an attendance level of 40,000 patrons would remain the same under the policy modal split scenario since the numbers of autos parked at the G.H.S.C. would be the same in each case.

Parking

As noted previously, auto occupancies have been estimated to increase from 3.0 to 3.5 for increases in level of attendance from 30,000 to 40,000 patrons. This results in a net increase of 1,100 auto vehicle trips which have been assumed to be accommodated by on-street parking beyond the 25 minute walk-in limit.

Roadway Access

As noted in Exhibit 2G1, no additional roadway capacity is required.

EXHIBIT 2G2

TRANSPORTATION IMPACT FOR SITE #9 (S.W.A.R.U.) AS A FUNCTION OF MODAL SPLIT AND LEVEL OF ATTENDANCE

	TRAVEL DEMAND				SUPPLY OF TRANSIT SERVICE									SUPPLY OF PARKING AND ROADWAY ACCESS TO SAME						
	Modal Split		Person Trips by Mode (000's)		Auto(1)	Extg. Service			Extra Trippers			Shuttle Bus			Parking			Equivalent Arterial Lanes (in one direction)			
Attend.	Choice/ Policy	(%)	Transit	Auto	Vehicle Trips (000's)	No. of Buses	Avg. Buses /Hr.	Cap.	No. of Buses	Avg. Buses /Hr.	Cap.	No. of Buses	Avg. Buses /Hr.	Cap.	Location	No. of Spaces	Extg. or Add'l (2)	Extg. Lanes	Cap. (VPH)	Add'l Lanes	Cap. (VPH)
30,000	Choice	3	0.9	29.1	9.7	7	7	525	5	5	375	87	201	15075	On-Site	1500	Add'l	4	3200	0	0
															MTC Site	3200	Add'l	1	800	3	2400
															Confed.Park	2000	Extg	1	800	2	1600
															Eastgate Sq.	3000	Add'l	10	8000	0	0
40,000	Choice	3	1.2	38.8	11.1	same as above			9	9	675	134	299	22425	On-Site	1500	Add'l	4	3200	0	0
															MTC Site	3200	Add'l	1	800	3	2400
															Confed.Park	2000	Extg	1	800	2	1600
															Eastgate Sq.	3000	Add'l	10	8000	0	0
															Queenston Mall	1400	Add'l	10	8000	0	0
30,000	Policy	10	3.0	27.0	9.0	same as above			33	33	2475	same as choice MS @ 30,000 attendees			On-Site	1500	Add'l	same as choice MS @ 30,000 attendees			
															MTC Site	2500	Add'l				
															Confed.Park	2000	Extg				
															Eastgate Sq.	3000	Add'l				
40,000	Policy	10	4.0	36.0	10.3	same as above			47	47	3525	132	295	22125	On-Site	1500	Add'l	same as choice MS @ 40,000 attendees			
															MTC Site	2500	Add'l				
															Confed.Park	2000	Extg				
															Eastgate Sq.	3000	Add'l				
															Queenston Mall	1300	Add'l				

(1) Occupancy is assumed to be 3.0 passengers/auto for an average attendance of 30,000 and 3.5 passengers/auto for attendance at the stadium capacity of 40,000.

(2) Extg = existing, and Add'l = additional which may be provided either by building a new lot or by renting an existing lot.

Site #9 (S.W.A.R.U.)

Site #9 is located adjacent to the solid waste reduction unit (S.W.A.R.U.) owned by the Region of Hamilton-Wentworth and, as such, has been named herein as the S.W.A.R.U. site.

Consistent with the assumptions employed for the analysis of Ivor Wynne Stadium, it has been assumed that use may be made of the shopping centres and other major parking facilities in the immediate vicinity of the S.W.A.R.U. site. These parking facilities include the parking spaces at Confederation Park, the spaces at Eastgate Square, and (if necessary) those spaces at the Queenston Mall area on either side of Nash Road south of Barton Street.

The analysis identifying the level and type of transportation service requirements for each modal split scenario at each of two levels of attendance is outlined in Exhibit 2G2 and discussed further below.

Choice Modal Split of 3% with Attendance Level of 30,000

Transit

The estimated modal split of 3% under choice modal split conditions would result in 900 riders using transit. Presently no direct transit service exists to the S.W.A.R.U. site. It is assumed, however, that the seven charter buses which currently serve Ivor Wynne Stadium would serve Site #9 if selected. This would provide a capacity of 525 passengers per hour. Five extra trippers would be required to operate between the stadium and downtown running one trip each to access and to egress the site. It is suggested that these could be run with three and two trippers respectively operating along Barton and Main Streets connecting to the stadium via an extended Kenora Avenue.

Shuttle bus service would be required to move patrons from the parking lots at Confederation Park and Eastgate Square. The shuttle to and from Confederation Park would require 27 buses each operating three trips per hour to provide a capacity of 6,075 passengers per hour required to serve 2,000 parked cars at Confederation Park. Similarly, 60 buses each making two trips per hour would be required to provide shuttle bus service to and from the 3,000 parkers at Eastgate Square. This latter service would provide the capacity to move 9,000 passengers per hour. The combined shuttle bus service characteristics provide for a capacity of 15,075 passengers per hour from 87 buses making 201 trips per hour.

Parking

Parking spaces must be provided for 9,700 vehicles in this scenario.

Among publicly owned parking areas, the City has identified approximately 2,000 parking spaces in Confederation Park from a 1976 parking inventory which could be used for stadium parking. Use could be made of the approximately 3,000 parking spaces at Eastgate Square in much the same manner as that suggested for the G.H.S.C. serving the Ivor Wynne site.

Parking on the site itself could only be developed up to approximately 1,500 spaces. The site area is 19.5 acres, but only 10 acres are available for parking which at 145 spaces per acre provides for 1,450 parking spaces.

Additional property is available in the vicinity of the site which could be developed for parking. The MTC has a parcel of land to the west and north of the site comprising approximately 22 acres. These 22 acres at 145 spaces per acre could provide the required 3,200 parking spaces.

Roadway Access

Among the 9,700 autos travelling to the stadium, 2,000 would be destined to the parking lots in Confederation Park, 3,000 to Eastgate Square, 3,200 to the MTC lands, and 1,500 to the site itself.

The existing road systems serving Eastgate Square and the site proper provide more than enough capacity as shown in Exhibit 2G2. Herein it has been assumed that the two northbound and two southbound lanes of Centennial Parkway would provide access/egress to the site. A four lane service road connecting Centennial Parkway with Kenora Avenue would have to be built, however, to provide for direct site access.

Insufficient roadway access to the MTC property and to the parking lots in Confederation Park currently exists. As shown in Exhibit 2G3, it is proposed that Nash Road be widened to 4 lanes between Bancroft Street and Brampton Street, that Kenora Avenue be widened to 4 lanes between Barton Street and Brampton Street, and that Brampton Street be widened to 4 lanes to provide the necessary access and capacity to service the parking area on the MTC property.

The roadway improvements shown in Exhibit 2G3 also indicate that the service road north of the QEW/Centennial Parkway interchange accessing the Confederation Park parking lots to the east should be widened to accommodate a short 6 lane section and then a 4 lane section.

Choice Modal Split of 3% with Attendance Level of 40,000

Transit

Additional trippers would have to be run between the downtown area

and the stadium to supplement the 7 charter buses assumed to provide the existing transit service. Nine trippers would be required to provide the necessary capacity of 675 passengers per hour which when added to the 525 passengers per hour provided by charter buses would provide the required 1,200 passengers per hour capacity.

The shuttle bus service required between the stadium and the parking lots in Eastgate Square and Confederation Park would have to be increased for an attendance level of 40,000 patrons since the auto occupancy is forecast to increase with an increase in attendance. Shuttle service to and from Eastgate Square would require 70 buses providing a capacity of 10,500 passengers per hour from 2 trips each per hour. Shuttle service from Confederation Park would require 31 buses each making 3 trips per hour to provide a capacity of 6,975 passengers per hour. The shuttle bus service to and from Queenston Mall would require 33 buses each making 2 trips per hour to provide the necessary capacity of 4,950 passengers per hour.

Parking

1,400 additional parking spaces would be required in this scenario beyond those levels identified for the 30,000 attendance level. These could be provided at the Queenston Mall area which includes the adjacent shopping plaza east of Nash Road.

Roadway Access

The roadway access to all lots previously identified remains the same as that required for an attendance level of 30,000 patrons. The existing roadway access to the Queenston Mall as shown in Exhibit 2G2 provides a capacity of some 8,000 VPH which is more than adequate to handle the 1,400 stadium parkers.

Policy Modal Split of 10% with Attendance Level of 30,000

Transit

More extra trippers are required than those required for a choice modal split level of 3%. 33 extra trippers operating one trip each would be required.

Shuttle bus service would remain the same as that for a choice modal split level of 3% since the parking uses of Confederation Park and Eastgate Square would not change from the choice modal split scenario levels.

Parking

There would be a reduction of 700 vehicle spaces as a result of a shift from choice modal split of 3% to a policy modal split of 10%. These reductions would occur at the MTC site.

Roadway Access

There would be no change from choice modal split levels.

Policy Modal Split of 10% with Attendance Level of 40,000

Transit

Substantial additional numbers of extra trippers would be required to handle the higher number of transit patrons occurring under a policy modal split scenario. 47 extra trippers operating one trip each would be required.

Two less shuttle buses would be required to serve this level of attendance under a policy modal split scenario than would be the case under choice modal split. The difference results from the slightly lower number of parkers who would use Queenston Mall in the former case.

Parking

With an increase in attendance from 30,000 to 40,000 under policy modal split conditions, there would be an additional parking demand for 1,300 spaces. Since there is insufficient additional land on the MTC site to provide for these numbers (only a surplus of 700 spaces since the site has already been assumed to have 2,500 spaces for the 30,000 level of attendance) and at other parking locations, the Queenston Mall area would have to provide the necessary spaces.

All other parking supply would remain the same as that required for an attendance level of 30,000 patrons.

Roadway Access

The roadway access would remain the same as that noted for the 40,000 level of attendees under choice modal split.

EXHIBIT 2G4

TRANSPORTATION IMPACT FOR SITE #2 (MOUNTAIN) AS A FUNCTION OF MODAL SPLIT AND LEVEL OF ATTENDANCE

	TRAVEL DEMAND				SUPPLY OF TRANSIT SERVICE									SUPPLY OF PARKING AND ROADWAY ACCESS TO SAME					
	Modal Split		Person Trips by Mode (000's)		Auto(1)	Extg. Service			Extra Trippers			Shuttle Bus/ (I.C.T.S.) (2)			Parking			Equivalent Arterial Lanes (in one direction)			
Attend.	Choice/ Policy	(%)	Transit	Auto	Vehicle Trips (000's)	No. of Buses	Avg. Buses /Hr.	Cap.	No. of Buses	Avg. Buses /Hr.	Cap.	No. of Buses	Avg. Buses /Hr.	Cap.	Location	No. of Spaces	Extg. or Add'l (3)	Extg. Lanes	Cap. (VPH)	Add'l Lanes	Cap. (VPH)
30,000	Choice	10	3.0	27.0	9.0	7	7	525	4	4	300	35 (4)	70 (20)	5250 (6640)	On-Site Regional Shop.Cent. ICTS Lots	4000 4000 1000	Add'l Add'l Add'l	2 8 Sufficient	1600 6400	4 0 0	3200 0 0
40,000	Choice	10	4.0	36.0	10.3	same as above			same as above			75 (7)	150 (35)	11250 (11620)	On-Site Regional Shop.Cent. ICTS Lots	4000 4000 2300	Add'l Add'l Add'l	same as above			
30,000	Policy	20	6.0	24.0	8.0	same as above			20	20	1500	27 (3)	54 (15)	4050 (4980)	On-Site Regional Shop.Cent.	4000 4000	Add'l Add'l	same as above			
40,000	Policy	20	8.0	32.0	9.1	same as above			27	27	2025	62 (6)	124 (30)	9300 (9960)	On-Site Regional Shop.Cent. ICTS Lots	4000 4000 1100	Add'l Add'l Add'l	same as above			

(1) Occupancy is assumed to be 3.0 passengers/auto for an average attendance of 30,000 and 3.5 passengers for attendance at the stadium capacity of 40,000.

(2) I.C.T.S. train characteristics assuming 83 passengers/car capacity in 4 car trains with the I.C.T.S. trains operating over a round trip distance of 8 km at an average speed of 40 km/hr.

(3) Extg = existing, and Add'l = additional which may be provided either by building a new lot or by renting an existing lot.

Site #2 (Mountain)

Site #2 is located on Hamilton Mountain on the east side of Upper Wentworth Street immediately south of the proposed Mountain Freeway.

Consistent with the assumptions employed for the Ivor Wynne and S.W.A.R.U. sites, it has been assumed that use may be made of the parking spaces at major parking lots within close proximity to the Mountain Site. These parking areas include the 4,000 parking spaces at the Regional Shopping Centre currently under construction located immediately north of Limeridge Road and east of Upper Wentworth Street and the parking lots expected to be located along the proposed north-south I.C.T.S. line.

It has also been assumed that the I.C.T.S. will not necessarily terminate at the Mountain site, but would most likely terminate within 4 km of Site #2. All figures with respect to transit operations reflect this latter assumption. For the purposes of this Phase 2 analysis, it has been assumed that a shuttle bus service would be run between the stadium at Site #2 and the terminus of the I.C.T.S. line.

The analysis identifying the level and type of transportation service requirements for each modal split scenario at each of two levels of attendance is outlined in Exhibit 2G4 and discussed further below.

Choice Modal Split of 10% with Attendance Level of 30,000

Transit

Scheduled transit service does not presently exist to this site. It is assumed that the present number of approximately 7 charter buses per football game would constitute the existing transit service at Site #2 carrying 525 passengers per hour.

It is estimated that 10% of the 3,000 persons travelling to and from the stadium entirely by transit would be served by extra trippers. Four such trippers making one trip each would provide the required 300 passenger per hour capacity.

The remaining 2,175 passengers per hour are forecast to arrive via I.C.T.S. and shuttle bus operating between the I.C.T.S. terminal and the stadium. Assuming that the I.C.T.S. terminal is about 4 km from the stadium, two shuttle bus trips per hour per bus could occur. Under these conditions, 15 shuttle buses would be required providing a capacity of 2,250 passengers per hour.

However, it is anticipated that a further 3,000 auto passengers and drivers will park at I.C.T.S. parking lots, perhaps ride the I.C.T.S. and ride the shuttle bus to the stadium. Thus a total of 5,250 passengers per hour would have to be accommodated by the bus shuttle. This would require 35 buses and would provide a capacity of 5,250 passengers per hour.

The number of riders travelling by I.C.T.S. would range from 2,250 to 5,250 passengers per hour depending upon the location of parking lots along the I.C.T.S. The required number of I.C.T.S. trains to accommodate the maximum demand requirements would be 4 trains each operating at 12 minute headways and would provide a capacity of 6,640 passengers per hour in one direction. (Note: three trains would provide a capacity of 4,980 passengers per hour which would be insufficient.)

It is assumed that parking would be available at the site itself (4,000 spaces), at the Regional Shopping CEntre immediately north of the site (4,000 spaces), and at the terminus and/or along the I.C.T.S. line (up to 2,500 spaces). For this scenario, 1,000 parking spaces would be required at the I.C.T.S. lots.

Roadway Access

Adequate access is being provided for the new Regional Shopping Centre. The parking lot generated demand of 4,000 vehicles per hour (VPH) can adequately be handled by the 6,400 VPH capacity provided by the road system presently under construction in the vicinity of this site.

Upper Wentworth Street, which is the only road presently providing access to the Mountain Stadium site is a two lane arterial. It is estimated that a minimum of six lanes of arterial roadway in one direction are required to service the site; one lane on Upper Wentworth Street to be set aside exclusively for buses to handle the anticipated high volumes and five lanes to provide 4,000 VPH capacity for the anticipated auto demand. This may be achieved by widening Upper Wentworth Street to four lanes (two in each direction) from Limeridge Road to Stone Church Road and by building a new 4 lane roadway running to the east from the stadium to connect with Upper Sherman Avenue.

Choice Modal Split of 10% with Attendance Level of 40,000

Transit

As with an attendance level of 30,000 patrons with a 10% modal split, it is assumed that charter buses would provide a capacity of 525 passengers per hour and 4 extra trippers would provide a further 300 passengers per hour capacity.

Shuttle bus service would have to be provided to handle 3,175 patrons from the I.C.T.S. line and 8,050 passengers from cars parked at the I.C.T.S. parking lots for a total of 11,225 passengers to be handled. This volume would require 75 buses operating at 30 minute headways to provide a capacity of 11,250 passengers per hour.

Parking

In addition to the 8,000 parking spaces available at the stadium plus Regional Shopping Centre parking areas, a further 2,300 spaces would be required at lots served by the I.C.T.S.

Roadway Access

It remains unchanged from that previously identified for 30,000 patrons attending a football game.

Policy Modal Split of 20% with Attendance Level of 30,000

Transit

It is assumed that seven charter buses would operate providing a capacity of 525 passengers per hour under the policy modal split scenario.

To achieve a modal split of 20%, it is anticipated that extra trippers would have to be run along many of the Mountain arterial roads and into the stadium. Approximately one quarter of the total transit ridership could be expected to be served by extra trippers or 1,500 passengers. Assuming that only one trip may be made by each tripper, this would require 20 buses to provide a capacity of 1,500 passengers per hour.

The remaining 3,975 transit patrons would be served by I.C.T.S. and shuttle bus. The shuttle bus requirements would be 27 buses providing a capacity of 4,050 passenger per hour.

Parking

Under the 20% modal split policy and an attendance level of 30,000 patrons, no additional parking is required beyond the 4,000 spaces to be provided at the stadium site and the additional 4,000 spaces to be provided at the Regional Shopping Centre.

Roadway Access

It remains unchanged from that previously identified.

Policy Modal Split of 20% with Attendance of 40,000

Transit

Seven charter buses are assumed to provide 525 passengers per hour capacity.

Approximately 2,000 patrons or 25% of the number of transit riders are anticipated to arrive via extra trippers. Twenty seven trippers are required to provide the necessary capacity.

Shuttle bus service would be required to accommodate the basic 5,475 transit patrons on the I.C.T.S. and a further 3,850 park and riders who park at parking lots along the I.C.T.S. To accommodate these 9,325 patrons, a bus fleet of 62 buses would be required.

Parking

In addition to the 4,000 parking spaces at each of the stadium and Regional Shopping Centre parking lots, a further 1,100 parking spaces would be required at lots along the I.C.T.S. line.

Roadway Access

It remains unchanged from that previously identified.

EXHIBIT 2G5

ANNUAL ADDITIONAL TRANSIT COSTS BY SITE AS A FUNCTION OF MODAL SPLIT AND LEVEL OF ATTENDANCE

(costs in $000's)

Site	Attendance	Modal Split		Tripper Service			Shuttle Bus Service			I.C.T.S. Service			Total Service		
				Gross Costs(1)	Gross Revenues(2)	Net Cost(3)	Gross Costs(1)	Gross Revenues(2)	Net Cost(3)	Vehicle Costs(4)	Operator Costs(5)	Gross /Net Costs(6)	Gross Costs	Gross Revenues	Net Costs
Ivor Wynne #8	30,000	Choice	10%	13.5	13.0	0.5	90.0	86.4	3.6	N/A	N/A	N/A	103.5	99.4	4.1
	40,000	Choice	10%	20.3	19.4	0.9	105.8	101.5	4.3	"	"	"	126.1	120.9	5.2
	30,000	Policy	20%	36.0	34.6	1.4	90.0	86.4	3.6	"	"	"	126.0	121.0	5.0
	40,000	Policy	20%	50.6	48.6	2.0	105.8	101.5	4.3	"	"	"	156.4	150.1	6.3
SWARU #9	30,000	Choice	3%	5.6	2.7	2.9	97.9	108.5	-10.6	N/A	N/A	N/A	103.5	111.2	-7.7
	40,000	Choice	3%	10.1	4.9	5.2	150.8	161.5	-10.7	"	"	"	160.9	166.4	-5.5
	30,000	Policy	10%	37.1	17.8	19.3	97.9	108.5	-10.6	"	"	"	135.0	126.3	8.7
	40,000	Policy	10%	52.9	25.4	27.5	148.5	159.3	-10.8	"	"	"	201.4	184.7	16.7
Mountain #2	30,000	Choice	10%	4.5	2.2	2.3	39.4	37.8	1.6	5.9	2.8	8.7	52.6	40.0	12.6
	40,000	Choice	10%	4.5	2.2	2.3	84.4	81.0	3.4	10.3	4.9	15.2	104.1	83.2	20.9
	30,000	Policy	20%	22.5	10.8	11.7	30.4	29.2	1.2	4.4	2.1	6.5	59.4	40.0	19.4
	40,000	Policy	20%	30.4	14.6	15.8	69.8	67.0	2.8	8.8	4.2	13.0	113.2	81.6	31.6

(1) Annual Costs = no. of buses x 5 hrs./event x $25/hr. x 9 events/yr. = no. of buses x $1,125

(2) Annual Revenues = bus ridership x 2 trips/event x $0.40/trip x 9 events/yr. ≃ bus capacity x $7.20

(3) Net cost = gross costs - gross revenues

(4) Annual Vehicle Costs = $0.511/veh. km x no. trains x 4 veh./train x 8 km/round trip x 10 trips/event x 9 events/yr. = no. of trains x $1,472

(5) Annual Operator Costs = no. of trains x 5 hrs./event x $15.63/hr. x 9 events/yr. = no. of trains x $703

(6) Total Gross/Net I.C.T.S. Costs = veh. costs + operator costs NOTE: All revenues have been assigned to shuttle bus operations.

TRANSPORTATION COST IMPLICATIONS

Estimates of the annualized costs attributable exclusively to each of the stadium sites under each of the aforementioned attendance levels and modal split scenarios have been made. These costs reflect those which would be in excess of those attributable to the basic transportation services which the City of Hamilton and the Region of Hamilton-Wentworth would provide in the absence of an expanded Ivor Wynne facility or a new stadium at Sites 2 or 9.

Cost estimates were made for transit operations, the provision and maintenance of parking facilities, and the provision of roadway facilities.

Transit

Annual additional transit costs have been estimated as a function of level of attendance and modal split for each site. These cost estimates include gross and net operating costs and revenues for the provision of extra tripper service, shuttle bus service, I.C.T.S. service, and total service. A summary of this analysis appears in Exhibit 2G5.

All the generalized assumptions from which cost and revenue estimates for this analysis were derived, are listed in Exhibit 2G5. Most of the assumptions stated herein reflect existing Hamilton Street Railway (H.S.R.) characteristics. The characteristics associated with the I.C.T.S. were obtained from two sources. The annual vehicle and operator cost rates were obtained from observed 1979 Edmonton LRT operating costs[2]. The I.C.T.S. train capacity characteristics were obtained from the office of the Urban Transportation Development Corporation (U.T.D.C.) who are the project managers for the study team performing planning and feasibility analysis for the proposed north-south Hamilton I.C.T.S. line.

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(2) Edmonton Planning Dept., "Northeast Light Rail Transit Evaluation Study Final Report", August 1979.

EXHIBIT 2G6

ANNUAL PARKING COSTS FOR SITE #8 (IVOR WYNNE) AS A FUNCTION OF MODAL SPLIT AND LEVEL OF ATTENDANCE

(costs in $000's)

Attendance	Modal Split		Parking Location	Capital Costs: Pavement Costs(1)	Capital Costs: Property Costs(2)	Capital Costs: Amortized Costs(3)	Annual Operating Costs(4)	Total Annual Funds: Gross Costs(5)	Total Annual Funds: Gross Revenue(6)	Total Annual Funds: Net Costs
30,000	Choice	10%	Scott Park	200.0	0	24.0	24.0	48.0	7.2	40.8
			G.H.S.C.	0	0	0	100.0	100.0	72.0	28.0
								148.0	79.2	68.8
40,000	Choice	10%	———	———	———	same as choice	MS @ 30,000 attendees	———	———	———
30,000	Policy	20%	Scott Park	0	0	0	0	0	0	0
			G.H.S.C.	0	0	0	100.0	100.0	72.0	28.0
								100.0	72.0	28.0
40,000	Policy	20%	———	———	———	same as policy	MS @ 30,000 attendees	———	———	———

(1) Pavement Costs = no. of spaces x $500/space

(2) Property Costs = no. of spaces x 1 acre/145 spaces x $400,000/acre ≃ no. of spaces x $2,760

(3) Amortized Costs = (Pavement + Property Costs) x 12%

(4) Annual Operating Costs = no. of spaces x $60/year, for own facility
= no. of spaces x $25/year, for rented facility

(5) Total Annual Gross Costs = Amortized Costs + Annual Operating Costs

(6) Total Annual Gross Revenue = no. of spaces/event x $2.00/space x 9 events/year = no. of spaces x $18/year

The net costs resulting from all transit services for each site for each scenario present some interesting findings. It is more expensive to provide a policy modal split level of transit service than it is to provide choice modal split service levels. This is so because the provision of transit service is generally non profitable. An exception to this occurs with the provision of shuttle bus between Site #9 (S.W.A.R.U.) and its adjacent parking lots. The short distances of travel permit greater utilization of the shuttle bus fleet to occur in this circumstance than is the case for the other two sites. A major finding is that it is generally less costly to provide transit service to an expanded Ivor Wynne stadium than is the case in servicing Site #2 or the Mountain with transit service. However, the additional net transit costs of the Mountain site result primarily from the provision of additional I.C.T.S. service to this site.

Parking Costs

The annual parking costs which would be incurred for the level of parking facilities identified for each site in Exhibits 2G1, 2G2, and 2G4 have been estimated. These cost estimates identify annual gross costs, gross revenues and net costs. The annual gross costs were determined from estimates of pavement and property capital costs and estimates of annual operating costs.

The cost estimates and formula from which these estimates were determined, are listed in the text in Exhibits 2G6, 2G7, and 2G8 for Site #'s 8, 9, and 2 respectively. Several major assumptions are implicit in these formula. These implicit assumptions are that:

- average parking lot space requirements per auto are 300 sq. ft./auto including provision for internal circulation roads;

EXHIBIT 2G7

ANNUAL PARKING COSTS FOR SITE #9 (S.W.A.R.U.) AS A FUNCTION OF MODAL SPLIT AND LEVEL OF ATTENDANCE

(cost in $000's)

Attendance	Modal Split	Parking Location	Capital Costs			Annual Operating Costs(4)	Total Annual Funds		
			Pavement Costs(1)	Property Costs(2)	Amortized Costs(3)		Gross Costs(5)	Gross Revenue(6)	Net Costs
30,000	Choice 3%	On-Site	750.0	0	90.0	90.0	180.0	27.0	153.0
		MTC Site	1600.0	1536.0	376.3	192.0	568.3	57.6	510.7
		Confed. Pk.	0	0	0	50.0	50.0	36.0	14.0
		Eastgate Sq.	0	0	0	75.0	75.0	54.0	21.0
							873.3	174.6	698.7
40,000	Choice 3%	On-Site	750.0	0	90.0	90.0	180.0	27.0	153.0
		MTC Site	1600.0	1536.0	376.3	192.0	568.3	57.6	510.7
		Confed. Pk.	0	0	0	50.0	50.0	36.0	14.0
		Eastgate Sq.	0	0	0	75.0	75.0	54.0	21.0
		Queenston Mall	0	0	0	35.0	35.0	25.2	9.8
							908.3	199.8	708.5
30,000	Policy 10%	On-Site	750.0	0	90.0	90.0	180.0	27.0	153.0
		MTC Site	1250.0	1200.0	294.0	150.0	444.0	45.0	399.0
		Confed. Pk.	0	0	0	50.0	50.0	36.0	14.0
		Eastgate Sq.	0	0	0	75.0	75.0	54.0	21.0
							749.0	162.0	587.0
40,000	Policy 10%	On-Site	750.0	0	90.0	90.0	180.0	27.0	153.0
		MTC Site	1250.0	1200.0	294.0	150.0	444.0	45.0	399.0
		Confed. Pk.	0	0	0	50.0	50.0	36.0	14.0
		Eastgate Sq.	0	0	0	75.0	75.0	54.0	21.0
		Queenston Mall	0	0	0	32.5	32.5	23.4	9.1
							781.5	185.4	596.1

(1) Pavement Costs = no. of spaces x $500/space

(2) Property Costs = no. of spaces x 1 acre/145 spaces x $70,000/acre ≃ no. of spaces x $480

(3) Amortized Costs = (Pavement + Property Costs) x 12%

(4) Annual Operating Costs = no. of spaces x $60/year, for own facility
= no. of spaces x $25/year, for rented facility

(5) Total Annual Gross Costs = Amortized Costs + Annual Operating Costs

(6) Total Annual Gross Revenue = no. of spaces/event x $2.00/space x 9 events/year = no. of spaces x $18/year

EXHIBIT 2G8

ANNUAL PARKING COSTS FOR SITE #2 (MOUNTAIN) AS A FUNCTION OF MODAL SPLIT AND LEVEL OF ATTENDANCE

(costs in $000's)

Attendance	Modal Split	Parking Location	Capital Costs: Pavement Costs(1)	Capital Costs: Property Costs(2)	Capital Costs: Amortized Costs(3)	Annual Operating Costs(4)	Total Annual Funds: Gross Costs(5)	Total Annual Funds: Gross Revenue(6)	Total Annual Funds: Net Costs
30,000	Choice 10%	On-Site	2000.0	0	240.0	240.0	480.0	72.0	408.0
		Regional Cent.	0	0	0	100.0	100.0	72.0	28.0
		I.C.T.S. Lots	0	0	0	25.0	25.0	18.0	7.0
							605.0	162.0	443.0
40,000	Choice 10%	On-Site	same as above			240.0	480.0	72.0	408.0
		Regional Cent.				100.0	100.0	72.0	28.0
		I.C.T.S. Lots				57.5	57.5	41.4	16.1
							637.5	185.4	452.1
30,000	Policy 20%	On-Site	same as above			240.0	480.0	72.0	408.0
		Regional Cent.				100.0	100.0	72.0	28.0
							580.0	144.0	436.0
40,000	Policy 20%	On-Site	same as above			240.0	480.0	72.0	408.0
		Regional Cent.				100.0	100.0	72.0	28.0
		I.C.T.S. Lots				19.8	27.5	19.8	7.7
							607.5	163.8	443.7

(1) Pavement Costs = no. of spaces x $500/space

(2) Property Costs = no. of spaces x 1 acre/145 spaces x $50,000/acre = no. of spaces x $345

(3) Amortized Costs = (Pavement + Property Costs) x 12%

(4) Annual Operating Costs = no. of spaces x $60/year, for own facility
= no. of spaces x $25/year, for rented facility

(5) Total Annual Gross Costs = Amortized Costs + Annual Operating Costs

(6) Total Annual Gross Revenue = no- of spaces/event x $2.00/space x 9 events/year = no. of spaces x $18/year

- property acquisition costs could vary by site as noted in the exhibits;
- capital costs are amortized at a rate of 12%;
- annual operating costs to maintain the parking lots would vary depending upon whether the lots were rented from others for 9 events per year (that is 9 half day periods) or were owned by the stadium authority and maintained 365 days of the year;
- a common off-street parking rate of $2.00/space would prevail at all parking lots assumed to supply stadium parking and these revenues would be collected by or on the behalf of the stadium authority.

The annual operating costs for a parking lot owned by the stadium authority and maintained by it year round were based upon Toronto Transit Commission (T.T.C.) 1970 costs to maintain surface parking lots. These costs were identified from a report on the Spadina Subway Terminus and included cost estimates of $15/space/year for maintenance and $10/space/year for fare collection (3). These maintenance costs were assumed to be similar to those to be expected for a stadium, but the fare collection costs were assumed to be higher than those expected for a stadium with only 9 football games per year requiring fare collection. A figure of $5/space/year in 1970 dollars was estimated to represent fare collection costs for stadium parking. These costs were factored by 2.70 to reflect 1980 costs resulting in a cost of $54/space/year. To this estimate was added an additional $6/space/year to reflect parking administration costs to produce an estimate of $60/space/year.

For rented facilities it was estimated that the maintenace costs for use of a parking facility 9 times per year would be substantially less than those incurred for year round use. A figure of 20% of the year round 1970 cost of $15/space/year was assumed, that is $3/space/year. Fare collection

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(3) Kates, Peat and Marwick, "Spadina Terminal Interchange Project", 1971 unpublished report for the T.T.C.

costs were assumed to be similar to those estimated for one's own facility since the number of events for which fares would be collected would be the same. Thus a figure of $5/space/year in 1970 dollars was assumed. These costs were factored by 2.70 to 1980 dollars resulting in an estimate of $22/space/year for maintenance and fare collection. Administration costs were estimated to be up to one half those associated with maintaining one's own facility, or $3/space/year. These assumptions resulted in a cost of $25/space/year for a rented parking facility.

The parking costs which resulted from this analysis varied substantially by site. The Ivor Wynne site, Site #8, was the least expensive site with respect to parking costs of the three sites examined with net annual parking costs ranging from $28,000 to $69,800 depending upon levels of attendance and modal split. The most expensive parking costs were found to occur at the S.W.A.R.U. site, Site #9, where net annual parking costs ranging from $587,000 to $708,500 were estimated. The Mountain site, Site #2, was estimated to incur annual net parking costs in the range of $436,000 to $452,100.

The substantially lower parking costs identified for the Ivor Wynne site versus the other two sites results primarily from the low capital costs attributable to this site. With the possible exception of paving Scott Park for use as a parking lot under the choice modal split scenario, no parking lots would be built for the Ivor Wynne site since existing off-street and on-street facilities would suffice (assuming full use of the G.H.S.C.).

At the S.W.A.R.U. site, between 15 and 22 acres of property would have to be acquired for parking to supplement the 10 acres of on-site land available at Site #9. The costs of property acquisition are estimated to range from $1,200,000 to $1,536,000 for these acreages. Substantial pavement

costs would also be incurred in the range of $2,000,000 to $2,350,000 depending on the modal split scenario.

The Mountain site would involve pavement costs of a similar magnitude to those of the S.W.A.R.U. site; the Site #2 pavement costs being $2,000,000. There are, however, no property acquisition costs since sufficient parking exists at this site under the assumptions identified in Exhibit 2G4.

Both the S.W.A.R.U. site and the Mountain site incur substantially higher annual parking operating costs than would occur at the Ivor Wynne site since these sites provide more off-street parking that would be administered by the stadium authority than would be the case for an Ivor Wynne facility. This operating cost difference is increased further since both Site #9 and #2 would provide substantial amounts of on-site parking which would be owned and maintained by the stadium authority, and the annual operating costs for such facilities are estimated to be $60/space/year whereas similar costs for the rented space at the G.H.S.C. are estimated to be $25/space/year.

The effect of level of modal split on parking costs is seem to be more pronounced for the S.W.A.R.U. site than is the case for the Mountain site. This occurs since the use of the I.C.T.S. parking lots to handle additional levels of parkers beyond the numbers that can be accommodated locally at the Mountain site is less costly and provides more flexibility that the situation at the S.W.A.R.U. site. At Site #9, extra property would have to be purchased to provide additional parking required for the lower levels of modal split.

EXHIBIT 2G9

ANNUAL ADDITIONAL ROADWAY COSTS BY SITE AS A FUNCTION OF MODAL SPLIT AND LEVEL OF ATTENDANCE

Site	Attendance	Modal Split		Roadway Requirements: Facility	No. of Lanes	Dist. (Km)	Capital Costs(1) ($000's)	Bus Terminal Capital Costs(2) ($000's)	Annualized Net Costs(3) ($000's)
Ivor Wynne #8	30,000	Choice	10%	——— No additional requirements ———				140.7	16.9
	40,000	Choice	10%	"	"	"	"	149.1	17.9
	30,000	Policy	20%	"	"	"	"	168.7	20,2
	40,000	Policy	20%	"	"	"	"	186.9	22.4
SWARU #9	30,000	Choice	3%	Kenora Ave.	4	1.0	515.0		
				Nash Rd.	4	0.5	257.5		
				Brampton St.	4	0.5	257.5		
				Van Wagners Rd.	6	0.8	500.0		
				Van Wagners Rd.	4	0.4	206.0		
				Stadium Access	4	0.7	360.5		
				Total			2,096.5	98.7	263.4
	40,000	Choice	3%	——— Same as above, total =			2,096.5	137.9	268.1
	30,000	Policy	10%	——— Same as above, total =			2,096.5	98.7	263.4
	40,000	Policy	10%	——— Same as above, total =			2,096.5	135.1	267.8
Mountain #2	30,000	Choice	10%	Access Road to Upper Sherman	4	0.5	257.5		
							125.0(4)		
				Total			382.5	56.7	52.7
		Choice	10%	——— Same as above, total =			382.5	102.9	58.2
		Policy	20%	——— Same as above, total =			382.5	56.7	52.7
		Policy	20%	——— Same as above, total =			382.5	106.4	58.7

(1) Roadway Capital Cost = Dist. x Rate/no. of lanes Where: no. of lanes = 2 3 4 5 6
rate/km = $305K $410K $515K $570K $625K

Source: Region of H-W approved 1979 Benchmark Costs factored by 110% to reflect 1980 conditions.

(2) Bus Terminal Capital Costs = no. of buses/hr x $700/bus/hr.

(3) Annualized Cost = (Roadway + Bus Terminal Capital Costs) x 12%

(4) Property costs for the Access Road to Upper Sherman which requires 2.5 acres at a cost of $50,000/acre.

Roadway Costs

The annual roadway costs have been estimated by site for each of the levels of attendance and modal split previously identified and have been summarized in Exhibit 2G9.

The roadway requirements identified in Exhibit 2G9 reflect only those facilities assumed to be the responsibility of the stadium authority. Other facilities which would be required for stadium access, but would normally be provided by the Region as part of its Regional Road construction program were not identified and costed in this exhibit.

The formula used to calculate each of the costs in Exhibit 2G9 are identified in the exhibit itself. The supporting assumptions from which these formula were derived are also listed herein.

The bus terminal capital cost formula of $700 per number of buses processed per hour was determined by designing a typical bus terminal for one site at one bus processing rate, estimating the capital costs for this design and relating this capital cost to the bus processing rate. These steps are briefly outlined below:

- Design

  For a demand to process 81 buses/hour at Site #2 at a typical loading time of 5 minutes/bus, one bus bay could handle 12 buses/hour. Thus, 7 bus bays would be sufficient, but to provide for some flexibility and a balanced loading platform design it would be appropriate to employ 8 bus bays.

- Costing

  Using standard parallel bay bus loading standards[4], two loading platforms of 260 ft. in length would be required. The profile width of the loading areas would be approximately 90 ft. made up of two 10-16 ft. platforms, two roadway lanes of 24-30 ft. each and a centre raised curb of 5 ft. The approximate pavement costs per linear foot for this design would be $121/ft.

(4) Joseph De Chiara and John Hancock Callender, "Time-Saver Standards for Building Types", 1973 McGraw-Hill.

The construction costs of the bus loading areas would become $31,500 (@260 ft. x $121/ft.). A bus turnaround would also be required costing approximately $25,000. The total cost would be approximately $56,500 for the platform area and turnaround.

- Formula

  The bus terminal cost as a function of bus processing rate is $56,500/(81 buses/hour) = $697.53 or about $700/(bus/hour).

The Ivor Wynne site would incur the lowest annual roadway costs among the three sites examined. These range in the order of $16,900 to $24,800 depending upon the level of attendance and the modal split.

The Mountain site would incur the next lowest annual roadway costs. These range from $52,700 to $58,700.

The S.W.A.R.U. site would incur the largest annual roadway costs ranging from $269,500 to $280,900.

The Ivor Wynne site has been identified as the least costly site from a roadway perspective since no new roads would be required. The only roadway expenses would be those incurred for the provision of a bus terminal.

At the Mountain site, several facilities would be required to provide adequate access to the site. These include the construction to 4 lanes of:the Mountain Arterial Road, Upper Wentworth Street south to Stone Church Road, Upper Sherman Avenue south to the newly proposed Access Road east from the stadium to Upper Sherman Avenue, and construction of the Access Road itself. Among these facilities, only the construction of the Access Road has been identified as the financial responsibility of the stadium authority.

The several roadways required to access the S.W.A.R.U. site are noted in Exhibit 2G9. Since none of these roadway improvements would be undertaken by the Region to service existing or likely developments in the area, the costs of providing these roadway improvements have been attributed entirely to the stadium authority.

DOWNTOWN ARENA TRANSPORTATION COSTS

As identified in Appendix 1F, there are no transportation service inadequacies for the downtown arena sites. High modal splits are expected and can be accommodated at a downtown arena site. The high expected modal split levels result in an auto travel demand level which can be accommodated by existing levels of off-street parking and by the capacity of the road system serving the downtown.

The only potential transportation costs which might result from the travel demands generated by an arena in the downtown area are transit costs. The anticipated maximum level of transit trip-making to an arena would result in some 3,400 passengers per hour on the transit system prior to the introduction of a north-south I.C.T.S. line serving the downtown area and 7,400 passengers per hour after the introduction of the I.C.T.S. line as noted in Exhibits 1F6 and 1F7 of Appendix 1F. Since the existing level of transit service into the downtown area provides typical capacities in the order of 10,000 passengers per hour from the approximately 130-135 buses/hour which currently serve this area throughout weekday evenings and weekend afternoons, the addition of an arena downtown would not require any additional transit service to be provided. However, this may happen in practice to encourage greater transit usage than that achievable under existing operations. In fact, the presence of an arena downtown would generate additional revenue

EXHIBIT 2G10

TOTAL ANNUAL COST RANGES FOR
THREE STADIA SITES

(costs in $000's)

Site	Attendance	Modal Split		Transit	Parking	Roadway	Total
Ivor Wynne #8	30,000	Choice	10%	4.1	68.8	16.9	89.8
	40,000	Choice	10%	5.2	68.8	20.2	91.9
	30,000	Policy	20%	5.0	28.0	20.2	53.2
	40,000	Policy	20%	6.3	28.0	24.8	56.7
SWARU #9	30,000	Choice	3%	-7.7	698.7	269.5	960.5
	40,000	Choice	3%	-5.5	708.5	278.0	981.0
	30,000	Policy	10%	8.7	587.0	271.8	867.5
	40,000	Policy	10%	16.7	596.1	280.9	893.7
Mountain #2	30,000	Choice	10%	12.6	443.0	52.7	508.3
	40,000	Choice	10%	20.9	452.1	58.2	531.2
	30,000	Policy	20%	19.4	436.0	52.7	508.1
	40,000	Policy	20%	31.6	443.7	58.7	534.0

for the H.S.R. Since greater utilization of the existing supply of transit service would occur.

CONCLUSIONS

From a vehicular transportation perspective, there are no significant transportation advantages or disadvantages among the three selected arena sites in the downtown area. Each of these sites would have a positive effect on the operation of the H.S.R. since they would act as net revenue generators for the property. Site #6 however has a distinct advantage by virtue of its pedestrian access to/from Jackson Square and linkages to the convention centre.

The three stadia sites exhibit substantial differences in the transportation servicing requirements of each. Assuming that the adjacent shopping centres may be utilized to provide parking for football games at any of the stadia sites, the Ivor Wynne site is the least costly site to accommodate with required transportation services. Thr Mountain site, Site #2, is the next least expensive site to serve, and the S.W.A.R.U. site, Site #9, the most expensive. The annual costs of providing transit, parking and roadway services to each site under a range of attendance levels and modal splits are shown in Exhibit 2G10.

A policy modal split is preferrable to a choice modal split at the Ivor Wynne site. At the S.W.A.R.U. site and at the Mountain Site, no appreciable cost savings would result from pursuing a policy modal split program rather than a choice modal split program.

STADIUM/ARENA FEASIBILITY STUDY

APPENDIX 2H

DESIGN CONSIDERATIONS

APPENDIX 2H

DESIGN CONSIDERATIONS

1. INTRODUCTION

This section addresses the considerations recognized as major factors in shaping the schematic design proposals illustrated in the following pages. As noted in Appendix 2D, a recently constructed stadium, arena, and grandstand facilities were used in a similar manner to assist preparation of the schematic designs. Each was then altered to suit the particular needs of the Hamilton program and the site under consideration.

The facilities used as "concept models" are as follows:

- The Commonwealth Games Athletic Stadium, Edmonton, Alberta. Completed July, 1978. Prime Consultants: Ragan, Bell, McManus Consultants Ltd.
- The Omni Coliseum, Atlanta, Georgia. Completed October 1972. Architects: Thompson, Ventulett, Stainbach and Associates, Inc.
- The Taylor Field Expansion, Regina, Saskatchewan. Completed April, 1980. Engineers: Reid, Crowther & Partners Ltd. Architects: Mitchell Phillips Associates Ltd.

It should be emphasized that these concept models are used only to assist in the illustration of the schematic designs. Any design work resulting from this feasibility study will require the normal process of facilities programming, site analysis, alternative concepts, etc.

2. ARENA - SITE 6

2.1 Number of Seats

The schematic design shown in Exhibits 2H1 through 2H4, is based on an approximately 15,300 seat arena. This size fits comfortably within the site

6 boundaries. Preliminary studies showed that more seats could be accommodated but this would necessitate some form of cantilevered structure to enable the arena to overhang the northern or southern boundary lines.

2.2 Seat Layouts

Two basic seat layout formats were considered:

- an equal depth of seating surrounding the arena space on all sides
- an unequal depth of seating surrounding arena, with the maximum depth of seating at the side of the arena.

Of the two basic formats, the latter is considered preferable, because a greater number of spectators can be accommodated at the side of the arena, giving better views of most of the activities. The limitation on side seating becomes the distance of the furthest seat from the centre of the arena. In the schematic design proposed, this is approximately 215 feet.

2.3 Flexibility of Use

In order to ensure maximum flexibility of use, the arena has been designed to accommodate the following activities: Hockey, Basketball, Boxing, Circus, Indoor Soccer, Stage Shows, and Trade Centre. Seating plans for these activities are illustrated in Exhibits 2H5 through 2H8.

All the above, with the exception of the Trade Centre function, are accommodated with adjustments to arena surface and the seating around the edge of the arena. The Trade Centre function, however, requires the creation of approximately 60,000 square feet of open floor space at the arena floor level. This is created by the use of banks of telescopic seating, (totalling approximately 1,850 seats), on the sides and ends of the arena, which when collapsed, form the walls to the exhibition space.

An alternative method of creating the exhibition space is shown as an option on Exhibit 2H4. This option assumes the use of permanently fixed seating throughout the arena with the exception of eight rows adjacent the arena ends and three rows adjacent the sides. The 60,000 square foot exhibition floor is created as a separate element, which is lowered into place at the plaza level when required, and raised to the arena ceiling level when not required. When not in use, the floor is suspended immediately below the roof trusses on cables. The floor is constructed as a lightweight spaceframe, supporting a rigid deck floor. The spaceframe serves the dual purpose of structure and support for light fixtures, loud speakers, scoreboards, catwalks, etc. When required to serve as an exhibition floor, the floor is lowered to the plaza level and supported from below with removeable "jack" columns.

An area of approximately 61,000 sq.ft. is provided at arena floor level to serve as storage and maneuvering space for the considerable quantities of floor seating, floor surfaces and equipment associated with the various activities referred to above.

2.4 Circulation

The main circulation level occurs at Plaza and Street levels (see Exhibits 2H1 and 2H2). Spectators can enter the Plaza level directly from Jackson Square Plaza on the south side or ascend stairs and escalators from Bay St. and York Blvd. The majority of the washroom and concession facilities are at Plaza with additional facilities at Street level. Access to the Plaza level can also be gained from the Street level on the south-eastern side, via escalator and stairs from a mall connecting to the existing mall system. Access to the Trade Centre floor at Arena level, is provided by escalator and stairs from Street level on the north-western corner and Street level on the south-eastern corner.

Truck access is provided via the existing ramp down to the eastern side at Arena level. Headroom is provided such that trucks and major items of exhibition equipment can be transported directly to the arena floor at the basement level. A second truck and car access ramp is provided from Bay St.

2.5 Structure

Clear sight lines require a roof structure capable of spanning approximately 360 feet. Two options, illustrated in Exhibit 2H4, have been investigated:

- an air supported stainless steel membrane roof
- a conventional steel truss structure supporting a conventional built-up flat roof

The air supported structure would seem to offer several advantages:

- effectively, the height of the building is reduced by approximately 28 feet. Welded stainless steel construction appears to offer freedom from maintenance and leaks over the lifetime of the structure.
- The system offers sufficient strength to support lighting systems, speaker clusters, etc.

However, use of this option is not compatible with the suspended floor option referred to above, because of the rigid nature of the space frame. It should be noted that an air supported structure requires airlock-type entries or revolving door systems, to maintain the required air pressure.

2.6 Relationship to Existing Buildings

The arena on site 6 occupies a key position on the northwest corner of Jackson Square. Schematic plans, (Exhibits 2H1, 2H2, and 2H3), illustrate the interface with Jackson Square, Bay Street and York Boulevard at Plaza,

Street and Basement levels. A major entrance is provided at Plaza level in the southeastern corner, to permit pedestrian access from the Convention Centre, Hotel and surrounding office towers. At Street level, an entrance in the southeastern corner links with the existing mall system. At basement level, truck and car access is integrated with proposals for the remainder of Jackson Square, and a staff parking area is provided. At Street level, entrances have been provided at the northeastern, northwestern and southwestern corners. On the Bay Street and York Blvd. frontages, retail/commercial space can be used in conjunction with arena functions, or independent of arena functions. Twenty foot wide pedestrian ramps on the east and west sides, give easy access to and from Plaza level for large crowds, as well as permitting access by the handicapped.

2.7 Architectural Considerations

A 360 ft. square building, for the most part unglazed, poses particular design requirements in an urban context. Choice of roof structure will have a major effect on the overall height of the building, as noted in Paragraph 2.5. Rounded corners are proposed, to soften the mass of the building and highlight the major entrances at each corner. In addition, the corners are "lightened" by glazed areas in-filling the areas beneath the corner seats. The stepped forms on the elevations reflect the seating arrangements within, and are clad with light coloured, baked enamel panels. The whole structure rests on a plinth which will be faced with materials compatible with the remainder of Jackson Square. The pedestrian ramps form a stepped counterpoint to the elevations above. (See Exhibit 2H9).

3. IVOR WYNNE STADIUM-SITE 8

3.1 Number of Seats

The design proposed is based on increasing the existing seating capacity of 33,947 seats by 8,500 seats, giving a total of 42,447 seats. The 8,500 new seats are provided in a new grandstand addition to the south of the existing south-side stands, (see Exhibit 2H10). An additional 4,716 seats are shown at either end of the 8,500 seat grandstand; these new seats replace the existing westend bleachers which are removed, to make way for a new bus terminal,facilitating bus entry and drop-off from Cannon Street to the south. The first seven rows of seating on the south stands have been replaced with new telescopic seating, enabling the use of a running track when required.

The new grandstand requires space presently occupied by a changing room and temporary bleachers used for the practice soccer field to the south. These facilities have been replaced by a new bleachers and changing facility located on the south side of the soccer field. The bleachers run over the top of the new changing facility, and also provide a covered arcade and seating oriented towards the community park. The soccer field is shown relocated to the east of the site, freeing up more space for the parking area.

3.2 South Grandstand Addition

Two alternative sections were considered:

- A two tier stand added alongside the existing seating. (see Exhibit 2H11)
- A two tier stand as above, but cantilevered over the existing stands. (See Exhibit 2H12)

The cantilevered alternative would have the advantage of lowering the vertical travel height for spectators by approximately 10 ft. and moving the seating block approximately 30 ft. closer to the field. However, these advantages are obtained at the cost of more complex structural requirements for the cantilever, and a requirement to drain the lower edge of the cantilever. This alternative would require a detailed design and costing analysis before the merits and disadvantages can be fairly compared with the known advantages and costs of the Regina type solution.

Both section alternatives are arranged in the form of twin-ramped access systems, with washrooms and other services contained in towers at each end. Press boxes and other special facilities are accommodated in the "split" between the two tiers.

4. STADIUM - SITE 2

4.1 Number of Seats

The schematic design shown in Exhibit 2H13 is based on a 42,500 seat stadium. The seats are distributed equally on either side of the field in two tiers, with the lower tier depressed below natural grade by approximately 50'0".

4.2 Site Planning

Exhibit 2H13 shows the stadium located centrally on site 2, and oriented in a north-south direction. This permits straightforward access to the west side of the stadium, and a longer access route to the east side, both from Upper Wentworth Street. Car parking areas are distributed on all sides of the stadium with the exception of the south side. This area is assigned

to a bus drop-off area. Exhibit 2H.13 also shows the location of a large existing sewer and storm culvert in the southeast corner of the site.

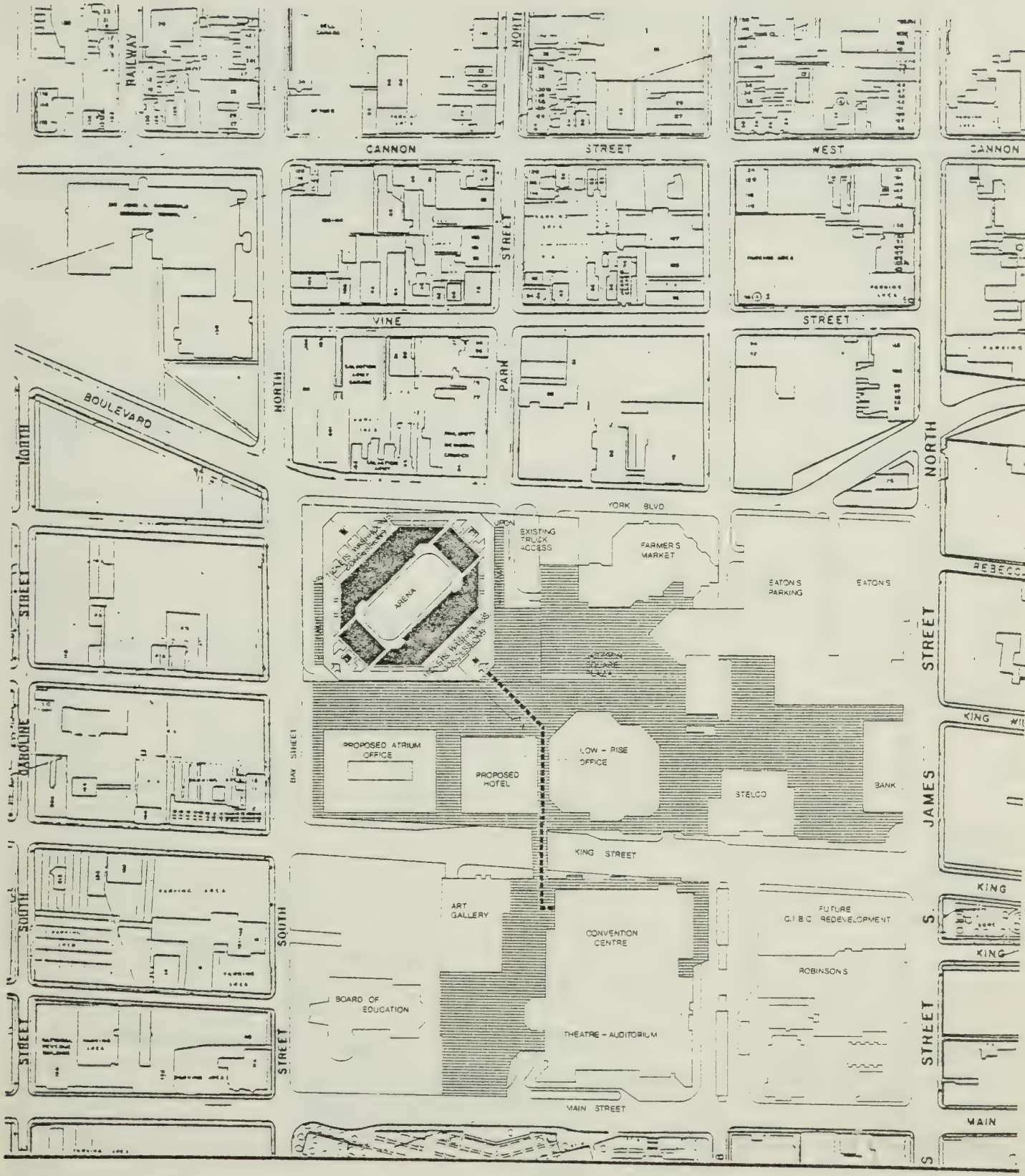


Exhibit
2H1

Site 6
Arena Plaza Level

Hamilton Stadium/Arena Feasibility Study IBI Group

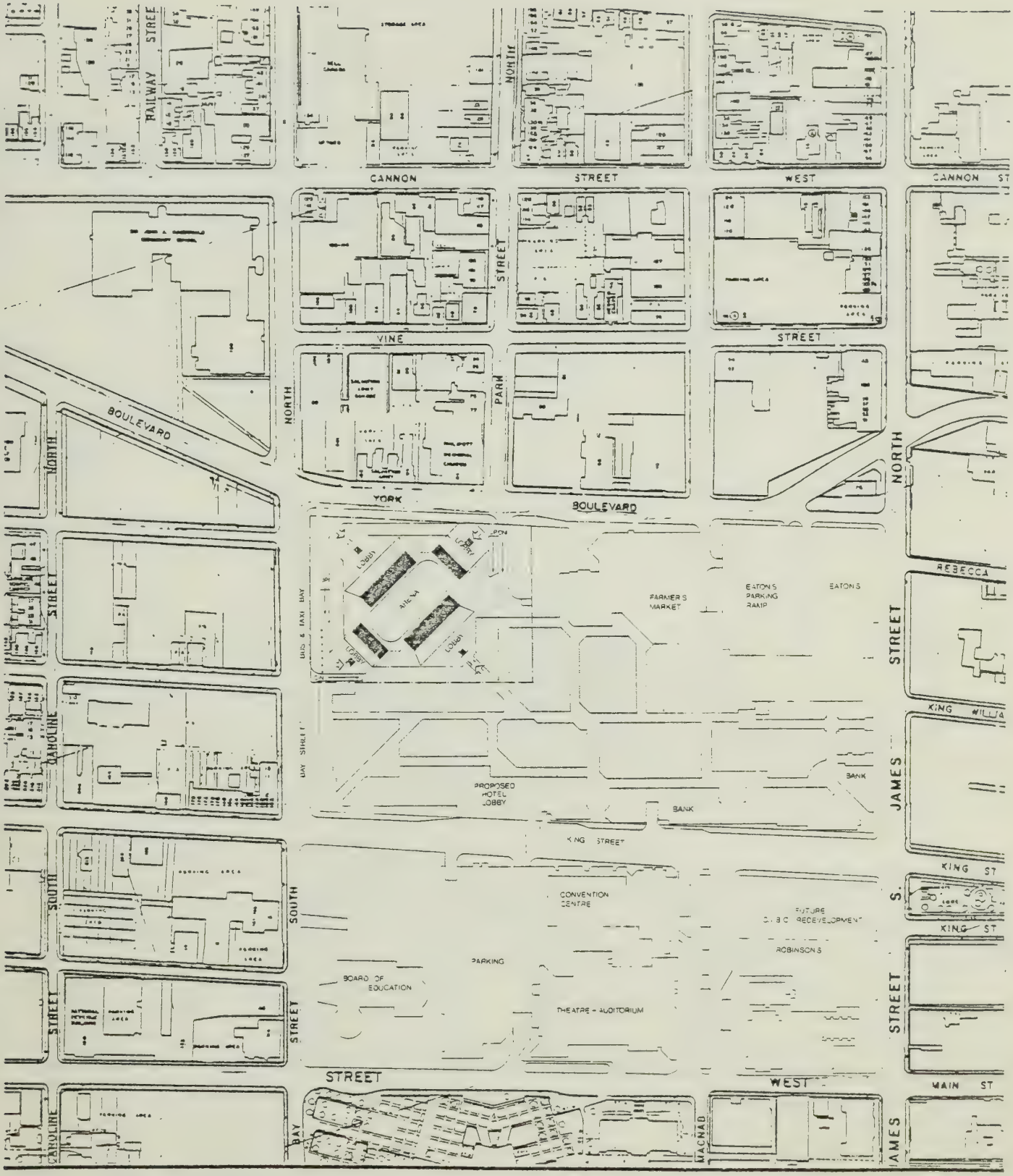


Exhibit
2H2

Site 6
Arena Street Level

Hamilton Stadium/Arena Feasibility Study IBI Group

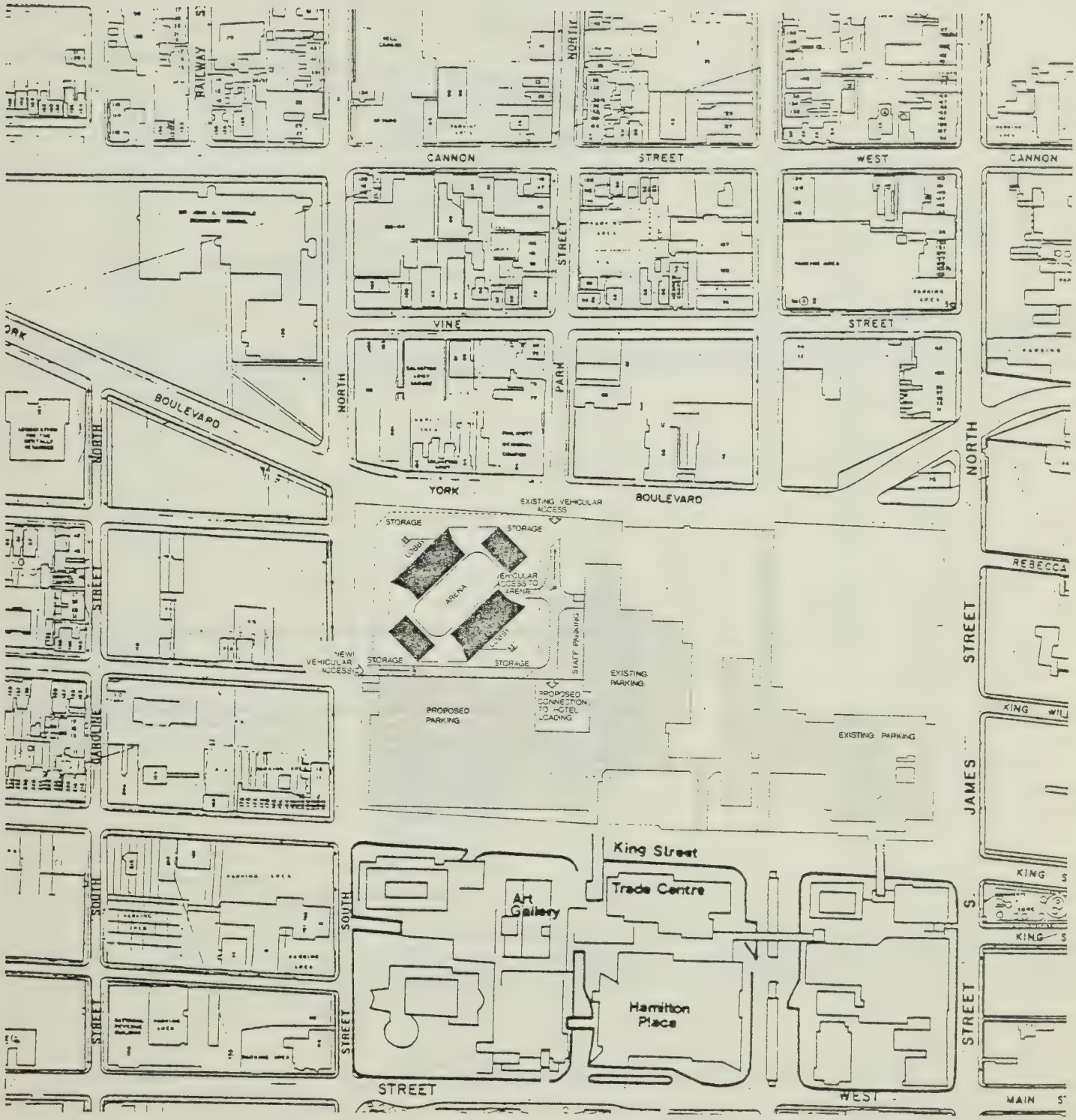
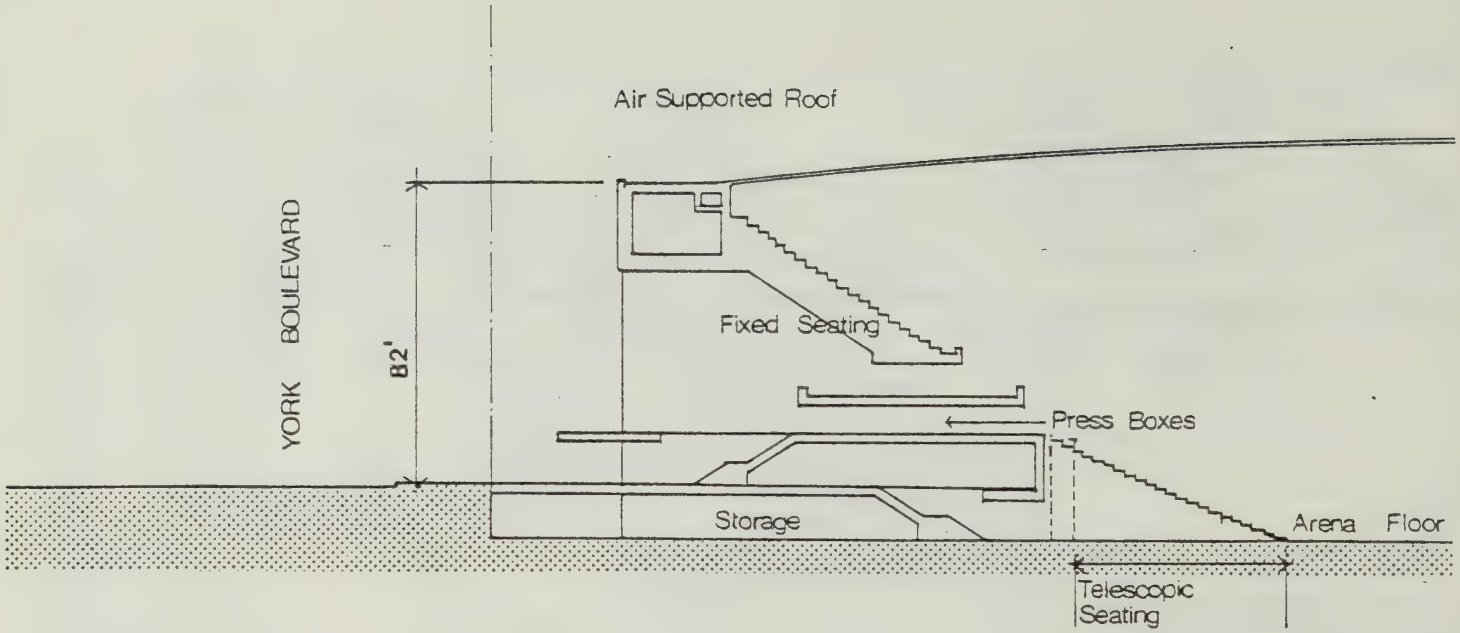
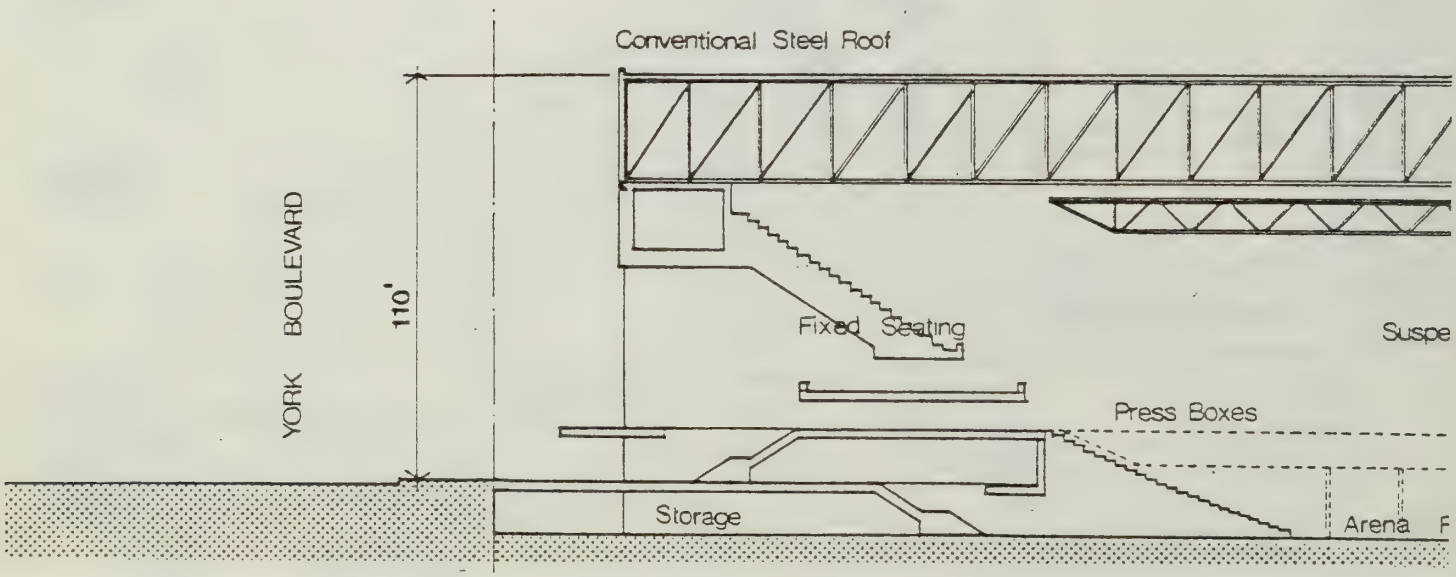


Exhibit
2H3

Site 6
Arena Basement Level



SECTION A–A , Showing Air Supported Roof



SECTION A–A , Showing Conventional Roof

Exhibit
2H4

Site 6
Arena Sections

EXHIBIT 2J4

ECONOMIC IMPACT OF ARENA/TRADE CENTRE

EXPENDITURE CATEGORY	TOTAL DIRECT EXPENDITURE[1]	INCOME MULTIPLIER[2]	TOTAL LOCAL INCOME[3]	RATIO OF DIRECT EMPLOYMENT: DIRECT EXPENDITURE (MAN-YEARS PER $ MILLION)[4]	DIRECT EMPLOYMENT (MAN-YEARS)[5]	EMPLOYMENT MULTIPLIER[2]	TOTAL DIRECT INDIRECT, INDUCED EMPLOYMENT (MAN-YEARS)[6]	TOTAL WAGES AND SALARIES (DIRECT, INDIRECT AND INDUCED EMPLOYMENT)[7]
Amusement, Recreation (In Arena)[8]	$8,597,280	*[9]	$5,703,110	*[9]	103	1.25	129	$3,815,000
Food and Beverage (In Arena)	2,166,770	1.48	3,206,820	42.3	92	1.39	128	1,920,000
Food and Beverage/ Amusement, Recreation (Out of Arena)	5,584,430	1.59[10]	8,879,240	51.5[10]	288	1.32[10]	380	5,700,000
Retail Trade (In Arena)	866,730	2.86	2,478,850	47.8	41	1.97	81	1,215,000
Service Stations[11]	(a) 821,660 (b) 1,254,450	3.46	(a) 2,842,940 (b) 4,340,400	47.8	(a) 39 (b) 60	2.24	(a) 87 (b) 134	(a) 1,305,000 (b) 2,010,000
Transportation[12]	(a) 1,479,650 (b) 988,860	1.13	(a) 1,672,000 (b) 1,117,410	33.8	(a) 50 (b) 33	1.69	(a) 85 (b) 56	(a) 1,275,000 (b) 840,000
TOTAL	(a) 19,516,520 (b) 19,458,520		(a) 24,782,960 (b) 25,725,430		(a) 613 (b) 617		(a) 890 (b) 908	(a) 15,230,000 (b) 15,500,000

[1] Total Direct Expenditure in this exhibit equals direct expenditures by persons from the secondary market area plus one-half the direct expenditures of persons from the primary market area - see text for explanation.

[2] Source: Ministry of Industry and Tourism, The Economic Impact of Tourism in Ontario and Regions, 1976, December, 1978.

[3] Total Local Income equals Total Direct Expenditure times the Income Multiplier.

[4] Source as in Note 2. Ratios have been adjusted from 1976 values on the assumptions that wage increases have averaged 8% per annum.

[5] Direct Employment equals Total Direct Expenditures times ratio of Direct Employment:Total Direct Expenditure.

[6] Direct Employment times the Employment Multiplier.

[7] Assumes an average wage of $15,000 per annum in all sectors. Value obtained by assuming 8% per annum increase in value used in source cited in Note 2.

[8] Ticket purchases.

[9] The income multiplier of 1.70 was applied only to that portion of expenditures judged to enter the local economy. It was assumed that 50% of expenditures, exclusive of salaries to NHL players, would leave the local economy immediately in the hands of travelling performers. The portion of expenditures remaining in the local economy was multiplied by a direct employment to direct expenditure ratio of 60.7 to get direct employment. This employment figure was added to an assumed NHL player employment of 20.

[10] The survey data did not separate Food and Beverage expenditures from Amusement, Recreation expenditures for out-of-stadium or arena expenditures; therefore, an average of the multipliers for these categories has been used for the out-of-stadium or arena expenditures. Any distortion caused by this will be relatively small, as the multipliers for the two categories are not greatly different.

[11] Totals (a) and (b) are for different assumptions about auto/public transportation proportions. Service station expenditures are for gasoline. It was assumed that 50% of persons from the secondary market area would buy gas in Hamilton.

[12] Totals (a) and (b) are for different assumptions about auto/public transportation proportions. Transportation expenditures equal the sum of parking plus public transportation expenditures.

EXHIBIT 2J5

ECONOMIC IMPACT OF A NEW STADIUM

EXPENDITURE CATEGORY	TOTAL DIRECT EXPENDITURE[1]	INCOME MULTIPLIER[2]	TOTAL LOCAL INCOME[3]	RATIO OF DIRECT EMPLOYMENT: DIRECT EXPENDITURE (MAN-YEARS PER $ MILLION)[4]	DIRECT EMPLOYMENT (MAN-YEARS)[5]	EMPLOYMENT MULTIPLIER[2]	TOTAL DIRECT INDIRECT, INDUCED EMPLOYMENT (MAN-YEARS)[6]	TOTAL WAGES AND SALARIES (DIRECT, INDIRECT AND INDUCED EMPLOYMENT)[7]
Amusement, Recreation (In Stadium)[8]	$874,020	1.70	$1,485,830	60.7	53	1.25	66	$990,000
Food and Beverage (In Stadium)	162,130	1.48	239,950	42.3	7	1.39	10	150,000
Food and Beverage/ Amusement, Recreation (Out of Stadium)	416,000	1.59[9]	661,440	51.5[9]	21	1.32[9]	28	420,000
Retail Trade (In Stadium)	64,850	2.86	185,470	47.8	3	1.97	6	90,000
Service Stations[10]	(a) 97,350 (b) 114,020	3.46	(a) 336,830 (b) 394,510	47.8	(a) 5 (b) 5	2.24	(a) 11 (b) 11	(a) 165,000 (b) 165,000
Transportation[11]	(a) 77,990 (b) 94,620	1.13	(a) 88,130 (b) 106,920	33.8	(a) 3 (b) 3	1.69	(a) 5 (b) 5	(a) 75,000 (b) 75,000
TOTAL	(a) 1,692,340 (b) 1,725,640		(a) 2,997,650 (b) 3,074,120		(a) 92 (b) 92		(a) 126 (b) 126	(a) 1,890,000 (b) 1,890,000

[1] Total Direct Expenditure relates to expenditures resulting from increased attendance as compared to existing Ivor Wynne Stadium. It is assumed that 90,000 additional football fans would attend games at the new stadium and an additional 55,000 people would attend concerts or another similar type of event. As in the arena analysis, Total Direct Expenditure comprises the full amount spent by persons from the secondary market area but only one-half the expenditures by people from the primary market area.

[2] Source: Ministry of Industry and Tourism, The Economic Impact of Tourism in Ontario and Regions, 1976, December, 1978.

[3] Total Local Income equals Total Direct Expenditure times the Income Multiplier.

[4] Source as in Note 2. Ratios have been adjusted from 1976 values on the assumptions that wage increases have averaged 8% per annum.

[5] Direct Employment equals Total Direct Expenditures times ratio of Direct Employment:Total Direct Expenditure.

[6] Direct Employment times the Employment Multiplier.

[7] Assumes an average wage of $15,000 per annum in all sectors. Value obtained by assuming 8% per annum increase in value used in source cited in Note 2.

[8] Ticket purchases.

[9] The survey data did not separate Food and Beverage expenditures from Amusement, Recreation expenditures for out-of-stadium or arena expenditures; therefore, an average of the multipliers for these categories has been used for the out-of-stadium or arena expenditures. Any distortion caused by this will be relatively small, as the multipliers for the two categories are not greatly different.

[10] Totals (a) and (b) are for different assumptions about auto/public transportation proportions. Service station expenditures are for gasoline. It was assumed that 50% of persons from the secondary market area would buy gas in Hamilton.

[11] Totals (a) and (b) are for different assumptions about auto/public transportation proportions. Transportation expenditures equal the sum of parking plus public transportation expenditures.

EXHIBIT 236

ECONOMIC IMPACT OF AN EXPANDED IVOR WYNNE STADIUM

EXPENDITURE CATEGORY	TOTAL DIRECT EXPENDITURE[1]	INCOME MULTIPLIER[2]	TOTAL LOCAL INCOME[3]	RATIO OF DIRECT EMPLOYMENT: DIRECT EXPENDITURE (MAN-YEARS PER $ MILLION)[4]	DIRECT EMPLOYMENT (MAN-YEARS)[5]	EMPLOYMENT MULTIPLIER[2]	TOTAL DIRECT INDIRECT, INDUCED EMPLOYMENT (MAN-YEARS)[6]	TOTAL WAGES AND SALARIES (DIRECT, INDIRECT AND INDUCED EMPLOYMENT)[7]
Amusement, Recreation (In Stadium)[8]	$ 553,500	1.70	$ 940,950	60.7	34	1.25	43	$ 645,000
Food and Beverage (In Stadium)	93,380	1.48	138,200	42.3	4	1.39	6	90,000
Food and Beverage/ Amusement, Recreation (Out of Stadium)	236,620	1.59[9]	376,230	51.5[9]	12	1.32[9]	16	240,000
Retail Trade (In Stadium)	58,140	2.86	166,280	47.8	3	1.97	6	90,000
Service Stations[10]	(a) 57,630 (b) 67,990	3.46	(a) 199,400 (b) 235,250	47.8	(a) 3 (b) 3	2.24	(a) 7 (b) 7	(a) 105,000 (b) 105,000
Transportation[11]	(a) 45,100 (b) 55,620	1.13	(a) 50,960 (b) 62,850	33.8	(a) 2 (b) 2	1.69	(a) 3 (b) 3	(a) 45,000 (b) 45,000
TOTAL	(a) 1,044,370 (b) 1,065,250		(a) 1,872,020 (b) 1,919,760		(a) 58 (b) 58		(a) 81 (b) 81	(a) 1,215,000 (b) 1,215,000

[1] Total Direct Expenditure relates to expenditures resulting from increased attendance as compared to existing Ivor Wynne Stadium. It is assumed that an additional 90,000 football fans would attend games at the expanded Ivor Wynne. There would be no change in attendance for other events. As in the arena analysis, Total Direct Expenditure comprises the full amount spent by persons from the secondary market area, but only one-half the expenditures by people from the primary market area.

[2] Source: Ministry of Industry and Tourism, The Economic Impact of Tourism in Ontario and Regions, 1976, December, 1978.

[3] Total Local Income equals Total Direct Expenditure times the Income Multiplier.

[4] Source as in Note 2. Ratios have been adjusted from 1976 values on the assumptions that wage increases have averaged 8% per annum.

[5] Direct Employment equals Total Direct Expenditures times ratio of Direct Employment:Total Direct Expenditure.

[6] Direct Employment times the Employment Multiplier.

[7] Assumes an average wage of $15,000 per annum in all sectors. Value obtained by assuming 8% per annum increase in value used in source cited in Note 2.

[8] Ticket purchases.

[9] The survey data did not separate Food and Beverage expenditures from Amusement, Recreation expenditures for out-of-stadium or arena expenditures; therefore, an average of the multipliers for these categories has been used for the out-of-stadium or arena expenditures. Any distortion caused by this will be relatively small, as the multipliers for the two categories are not greatly different.

[10] Totals (a) and (b) are for different assumptions about auto/public transportation proportions. Service station expenditures are for gasoline. It was assumed that 50% of persons from the secondary market area would buy gas in Hamilton.

[11] Totals (a) and (b) are for different assumptions about auto/public transportation proportions. Transportation expenditures equal the sum of parking plus public transportation expenditures.

The market survey also showed very few people making expenditures on retail items outside the stadium or arena. Therefore, no estimate of such expenditures has been included in this analysis although, as in the case of accommodation expenditure, at least some small amount would occur.

Exhibit 2J4 shows the impact of an arena/trade centre on total local income to be in the order of $25 million. Direct employment would be slightly more than 600 man-years, which implies total direct, indirect, and induced employment of about 900 man-years, earning just over $15 million in wages and salaries. In Exhibit 2J5 the impact of a new stadium on total local income is shown to be about $3 million. Direct and total employment generated by this expenditure would be about 90 and 125 man-years, respectively. Total wages and salaries paid for this amount of total employment would be just under $2 million. The economic impact of an expanded Ivor Wynne Stadium (Exhibit 2J6) would be somewhat smaller than for a new stadium. The impact on total local income would be under $2 million, and total direct, indirect and induced employment would be about 80 man-years with total wages and salaries of about $1.2 million.

IMPACT OF CONSTRUCTION EXPENDITURES

Exhibit 2J7, overleaf, shows direct construction expenditures and employment for the arena/trade centre ($38.8 million, 405 man-years), the new stadium ($32.4 million, 344 man-years), and the expanded Ivor Wynne Stadium ($22.0 million, 233 man-years). Income and employment multipliers for the construction industry given in the Ministry of Industry and Tourism report cited earlier have been used to estimate total income and total employment as a result of the construction expenditures.

EXHIBIT 2J7

ECONOMIC IMPACT OF CONSTRUCTION EXPENDITURES

	DIRECT EXPENDITURE ($ MILLION)[1]	INCOME MULTIPLIER[2]	TOTAL INCOME ($ MILLION)[3]	DIRECT EMPLOYMENT (MAN-YEARS)[1]	EMPLOYMENT MULTIPLIER[2]	TOTAL EMPLOYMENT (MAN-YEARS)[3]
Arena/Trade Centre	38.8	2.07	80.3	405	2.94	1,190
New Stadium	32.4	2.07	67.1	344	2.94	1,010
Expanded Ivor Wynne	22.0	2.07	45.5	233	2.94	685

[1]Source: Appendix 2D: Final Cost Report.

[2]Source: Ministry of Industry and Tourism, The Economic Impact of Tourism in Ontario and Regions, 1976 December, 1978

[3]Sum of direct, indirect and induced impacts.

EXHIBIT 2J8

INCOME TO THE CITY OF HAMILTON AS A RESULT
OF DIRECT EXPENDITURES ON FOOD AND BEVERAGE/ENTERTAINMENT
OUTSIDE THE ARENA/TRADE CENTRE AND STADIUM

	ARENA/TRADE CENTRE	NEW STADIUM	EXPANDED IVOR WYNNE
Direct Expenditure on Food and Beverage/Entertainment Outside Arena/Trade Centre and Stadium	$5,584,430	$416,000	$236,620
Square footage of commercial space supported by expenditure	55,844 sq.ft.	4,160 sq.ft.	2,366 sq.ft.
Realty plus Business Taxes (varies according to location and type of structure)	$40,236 - $87,117	$2,995 - $6,490	$1,704 - $3,691

Total income generated by construction expenditures is estimated to be $80.3 million, $67.1 million, and $45.5 million for the arena/trade centre, new stadium, and expanded Ivor Wynne, respectively. Total employment would be in the order of 1,190, 1,010, and 685 man-years.

INCOME TO THE CITY OF HAMILTON

The principal source of revenue to the City of Hamilton associated with the local economic impact of the arena/trade centre and new or expanded stadium would be taxes on various establishments supported by direct expenditures in food and beverage/entertainment. Exhibit 2J8 shows the number of square feet of commercial space that would be supported by these expenditures, assuming an average sales level of $100 per square foot. Taxes on this space would depend on assessed value which varies according to location and type of building. Consequently, Exhibit 2J8 shows a range of tax revenues based on a range of assessed values for commercial property in downtown and suburban Hamilton. The arena/trade centre would create the largest amount of income ranging from about $40,000 to almost $90,000 per year. The income resulting from either stadium option would be much smaller, from less than $2,000 to about $6,500 per year.

IMPACT ON AMATEUR SPORT

With respect to amateur sport, the expansion of the Ivor Wynne Stadium essentially results in a continuation of the status quo. It provides expanded and improved seating, but would not increase the availability of major stadium facilities to amateur sport.

On the other hand, the development of a new stadium would both free-up additional time at Ivor Wynne Stadium for the use of amateur sporting organizations, and would provide a major new facility in a growing residential area.

While in terms of overall usage the City of Hamilton would seem to be well supplied with facilities at the present time, there is a shortage of major facilities of the highest quality equipment and accommodation, including lighting. Thus, it has been noted that the availability of an Astro-turf surface in Ivor Wynne Stadium enables the area soccer league to utilize the facility early in March. Further, it has been noted that at Ivor Wynne Stadium numerous requests to hold special events could not be accommodated due to previous commitments. It has also been noted that utilization of one park would be greatly increased if lighting were available. A summary of the use of major facilities in 1979 has been prepared by the City Recreation Department and is attached.

It would therefore appear that the construction of a new stadium would provide significantly greater opportunities for amateur sport, and that there is a growing demand from the amateur sporting community which makes facilities that can operate successfully in the spring, fall, and in the evenings especially valuable.

The arena/trade centre would provide some opportunity for indoor sporting events, excluding amateur hockey, which causes too rapid deterioration of an ice surface to be used for NHL play. In addition, in that additional opportunities would be provided to observe a range of professional sports such as indoor tennis, indoor soccer, and lacrose, interest of amateur

sportmen in these sports would be stimulated and encouraged. There is also no doubt that the presence of an NHL team in Hamilton would provide a still greater stimulus to the young Hamilton hockey players, and also provide the opportunity to observe the nation's best hockey players in action on a regular basis.

Contribution to amateur sport would thus be direct in terms of the use of the facility, and indirect in terms of the instruction it would provide and increased enthusiasm it would generate. While these impacts are difficult to quantify, there is no doubt that the overall effect of both would be positive.

MAJOR FACILITIES - % OF TIME UTILIZED

1 9 8 0
(Fields are maintained from May 15 - Aug. 15.)
UNLESS OTHERWISE REQUESTED

Prepared by: (Mrs.) Ruth Tiefenbach
Recreation Department - City Hall
September 8th, 1980

BERNIE ARBOUR STADIUM

Operating Season: May 15th - September 30th

Hours of Operation: Weekdays 6:00 p.m. - 11:00 p.m.
Weekends 9:00 a.m. - 11:00 p.m.

Classification of Applicants Utilizing Facility: Board of Education
Amateur Baseball
Semi-Pro Baseball

Weekdays/Mon.-Fri.

May 15th	Weekdays	25%		Amateur Baseball/
	Weekend	25%	Sat./Sun.	Semi-Pro Baseball
June	Weekdays	25%		Amateur/Semi-Pro Baseball
	Weekends	25%	Sat./Sun.	"
July	Weekdays	25%		Amateur/Semi-Pro Baseball
	Weekends	25%	Sat./Sun.	"
August	Weekdays	25%		" /Semi-Pro Baseball
	Weekends	50%	Sat./Sun.	Amateur Baseball
September	Weekdays	15%		Amateur/Semi-Pro Baseball
	Weekends	NIL	Sat./Sun.	

(September Operating Season Depends on Play-Off Standings)

H.A.A.A. GROUNDS

(Soccer/Football)

Classification of Applicant Utilizing Facility: Board of Education
Amateur Soccer
" Football

May 15th	Weekdays	NIL	
	Weekends	50% Sat.	Amateur Soccer
June	Weekdays	5%	Amateur Soccer
	Weekends	50% Sat. 25% Sun.	Amateur Soccer
July	Weekdays	25%	Amateur Soccer/Football
	Weekends	50% Sat./Sun.	" "
August	Weekdays	25%	Amateur Football
	Weekends	50% Sat./Sun	Amateur Football/Soccer

SACKVILLE HILL PARKS (Enclosed Field)
(Soccer/Football/Track)

Classification of Applicant Utilizing Facility: Amateur Football/Soccer/Track

May 15th	Weekdays	25%		Board of Education/Track
	Weekends	25%	Sat.	Amateur Soccer
June	Weekdays	25%		Track/ Amateur Soccer
	Weekends	50%	Sat./Sun.	Amateur Soccer
July	Weekdays	25%		Track/Amateur Soccer
	Weekends	50%	Sat./Sun.	Amateur Soccer
August	Weekdays	25%		Track/Amateur Soccer
	Weekends	50%	Sat.	Amateur Soccer
		25%	Sun.	Amateur Football
September	Weekdays	50%		Board of Education/Track
	Weekends	50%	Sat.	Amateur Soccer/Football
		25%	Sun.	Amateur Football
October	Weekdays	25%		Board of Education
	Weekends	50%	Sat.	Amateur Football
		50%	Sun.	" "
November	Weekdays	25%		Board of Education

(It should be noted that the utilization of this particular park could be greatly increased if lighting were available.) The track and playing field are excellent.

VICTORIA PARK
(Baseball)

Classification of Applicant Utilizing Facility: Amateur Baseball

May 15th	Weekdays	25%		Amateur Baseball
	Weekends	NIL		
June	Weekdays	25%		" "
	Weekends	25%	Sun.	" "
July	Weekdays	25%		" "
	Weekends	25%	Sun .	" "
August	Weekdays	25%		" "
	Weekends	25%	Sun.	" "
September	Weekdays	25%		" "
	Weekends	NIL		

IVOR WYNNE STADIUM

Operating Season: March 15th - November 20th)

Hours of Operation: Weekdays 1:00 p.m. - 11:00 p.m.
Weekends 9:00 a.m. - 11:00 p.m.

Classification of Applciants Utilizing Facility: Tiger Cat Football Club
Semi-Pro Soccer/Football
Amateur Soccer/Football
Special Events as Request

(It should be noted that Ivor Wynne Stadium is utilized by the area soccer league early in March primarily because all other facilities are maintained from May 15th only and secondly the astro turf surface is desired.)

March 15th	Weekdays	25%		Amateur Soccer
	Weekends	50%	Sat./Sun.	Amateur Soccer
April	Weekdays	25%		" "
	Weekends	50%	Sat./Sun.	" "
May	Weekdays	25%		Tiger Cat Football Club
	Weekends	75%	Sat./Sun.	Amateur Soccer
June	Weekdays	25%		Ti Cat Football Club
	Weekends	25%	Sat./Sun.	Amateur Football
		5%		Special Events /Cheerleader
July	Weekdays	25%		Ti Cat Football Club
	Weekends	25%	Sat.	Ti Cats/Amateur Football
		5%	Sun.	Special Events/Cheerleaders
August	Weekdays	25%		Ti Cat Football Club
	Weekends	25%	Sat./Sun.	Ti Cats/Ti Cat Cheerleaders Special Events
September	Weekdays	50%		Board of Education/Ti Cats
	Weekends	25%	Sat./Sun.	Amateur Football/Ti Cats
October	Weekdays	50%		Board of Education/Ti Cats
	Weekends	50%	Sat.	Amateur Football
		25%	Sun.	Ti Cats/Cheerleaders
November	Weekdays	50%		Ti Cats/Board of Education
	Weekends	50%	Sat.	Amateur Football
		50%	Sun.	" "

We have received numerous requests to hold Special Events in the stadium however, were unable to accommodate these requests due to previous committments.

BRIAN TIMMIS STADIUM

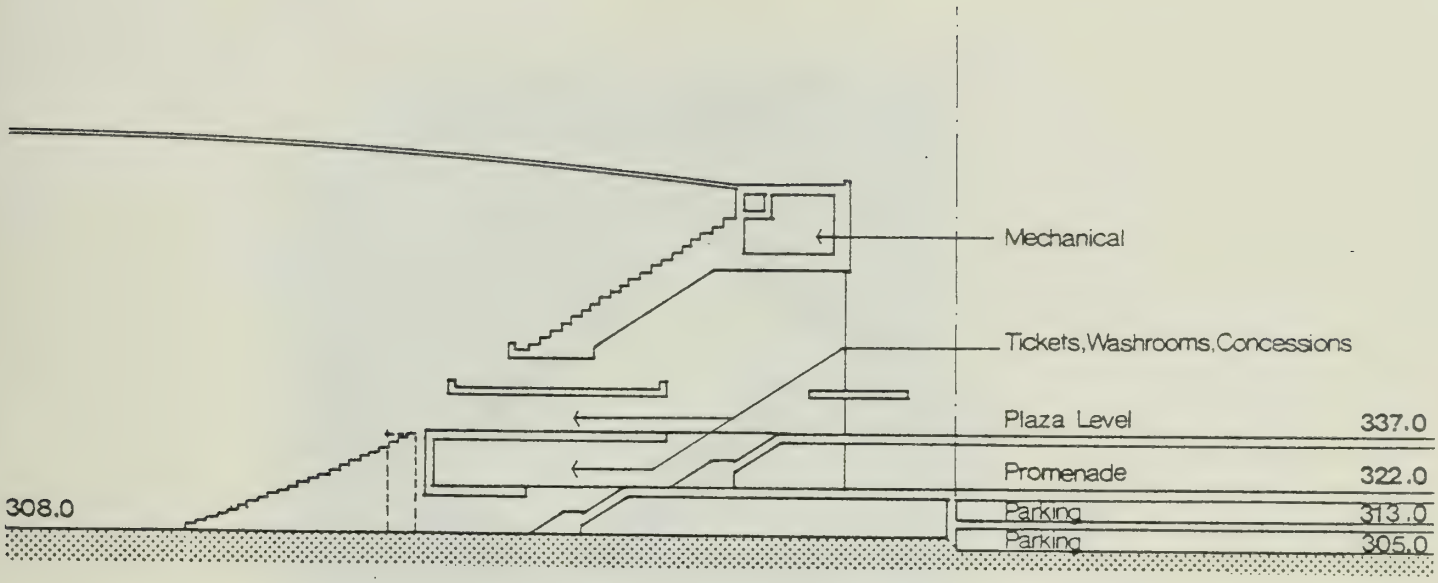
(Soccer Facility adjoining Ivor Wynne Stadium)

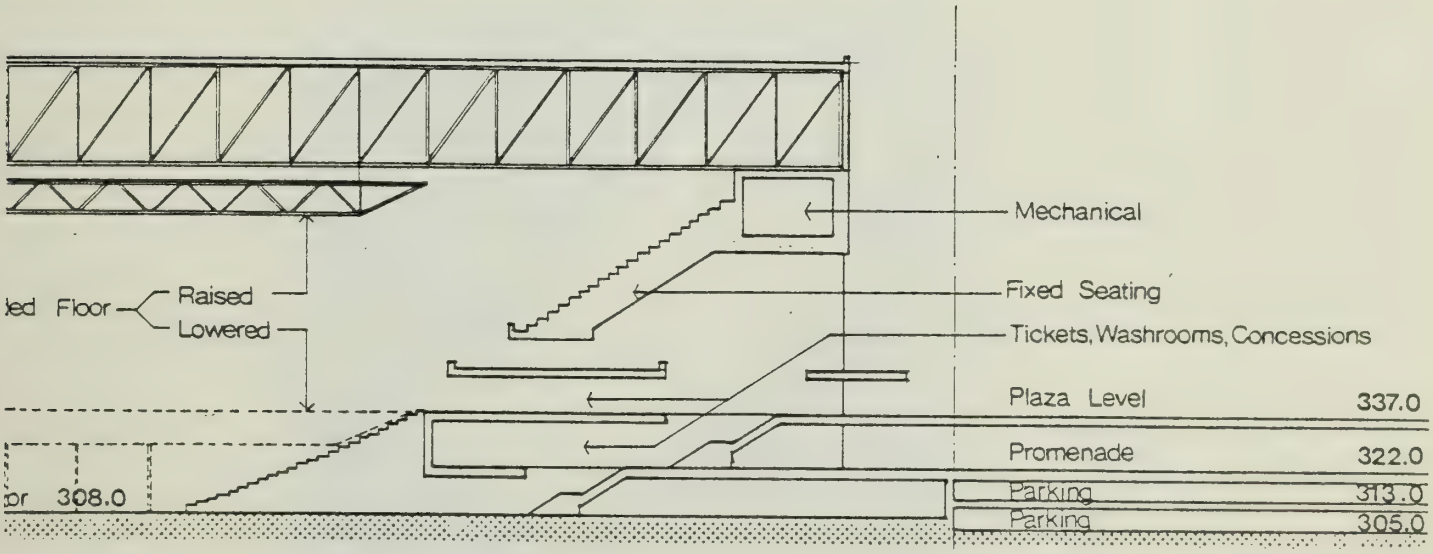
Operating Season: April - November

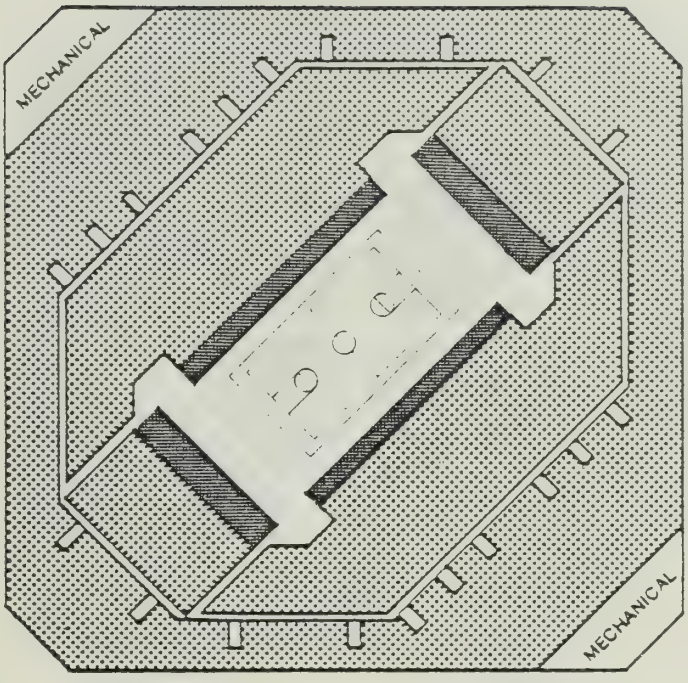
Classification of Applicants Utilizing Facility: Amateur Soccer/Football/ Field Hockey

(The lateness in renting this facility was due to very poor field conditions and the possibility of reconditioning the field in spring)

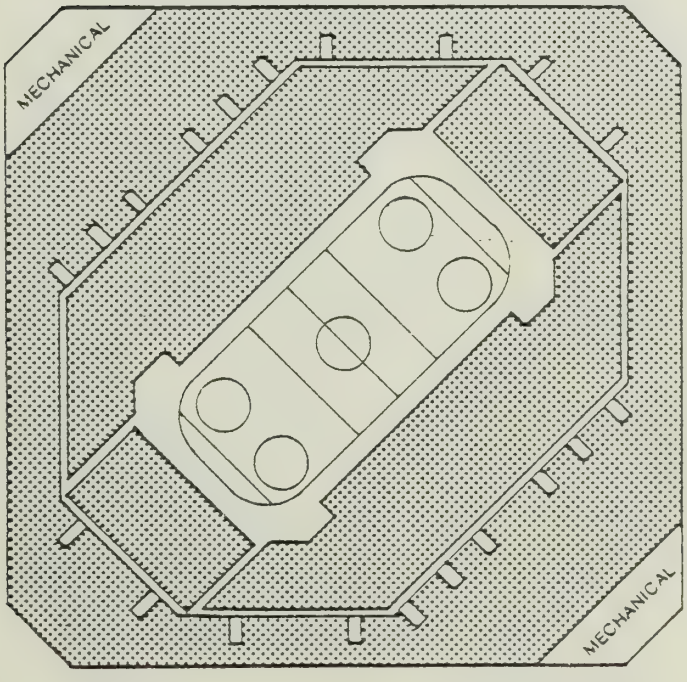
July	Weekdays	25%	Amateur Soccer
	Weekends	75%	" "
August	Weekdays	25%	Amateur Soccer
	Weekends	75%	" "
September	Weekdays	50%	Amateur Football / Bd. of Ed.
	Weekends	75%	" Soccer
October	Weekdays	50%	Amateur Football/Bd. of Ed.
	Weekends	NIL	
November	Weekdays	25%	Board of Education
	Weekends	NIL	


Mechanical
Tickets, Washrooms, Concessions
Plaza Level
337.0
Promenade
322.0
308.0
Parking
313.0
Parking
305.0


Mechanical
Fixed Seating
Tickets, Washrooms, Concessions
led Floor
Raised
Lowered
Plaza Level
337.0
Promenade
322.0
or 308.0
Parking
313.0
Parking
305.0



Basketball 16,400 Seats



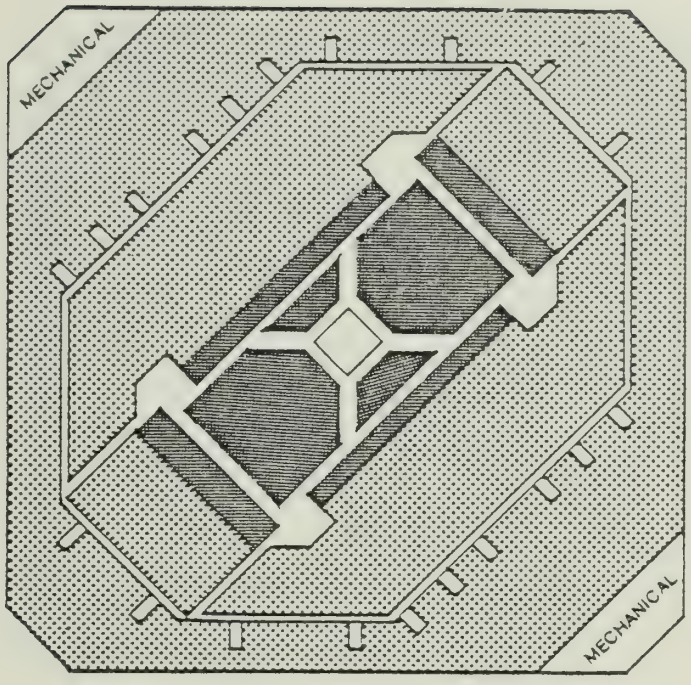
Hockey 15,300 Seats

Exhibit
2H5

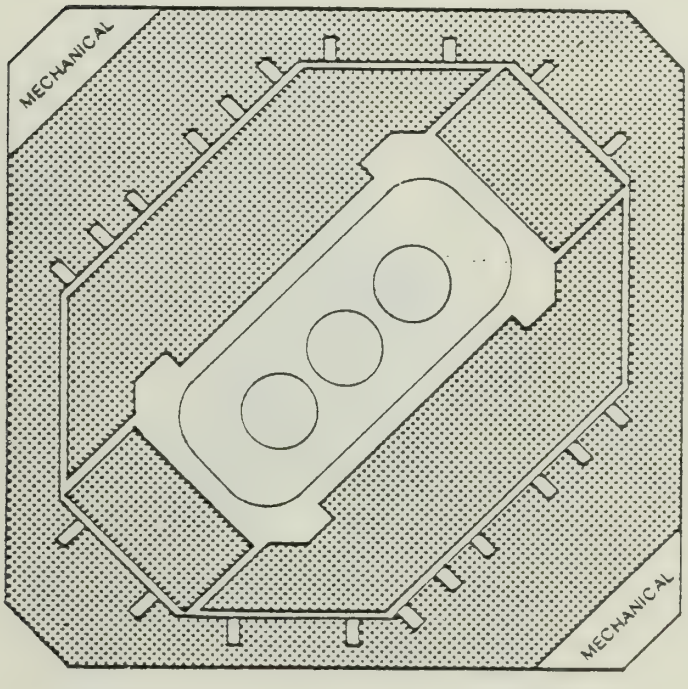
1:100

Site 6
Arena Seating Plans

Hamilton Stadium/Arena Feasibility Study IBI Group



Boxing 16,750 Seats

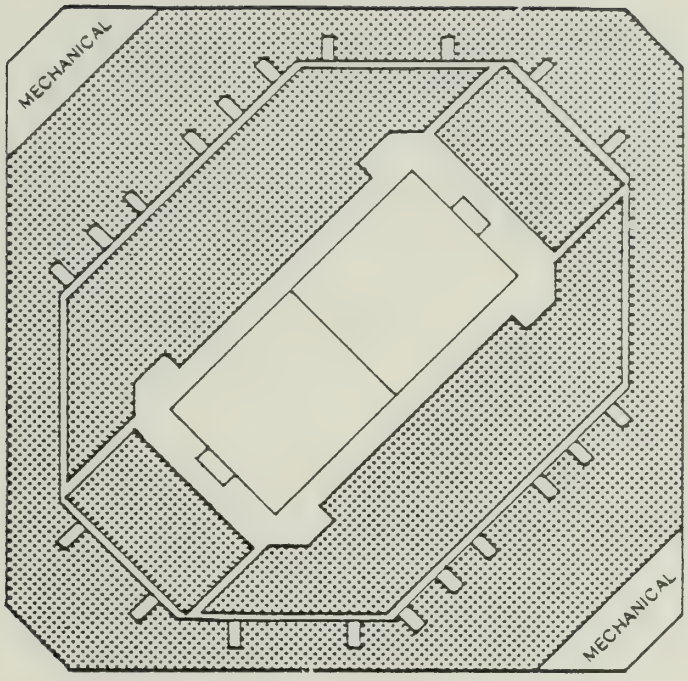


Circus 15,300 Seats

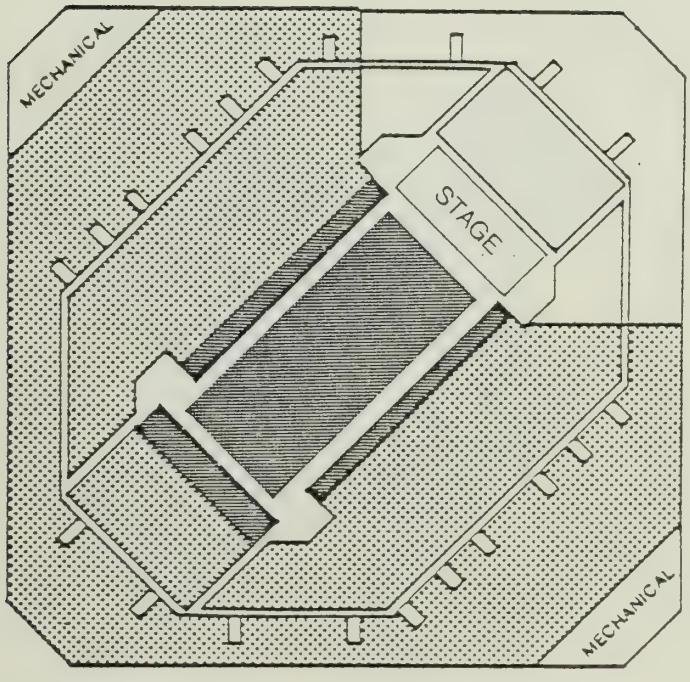
Exhibit
2H6

Site 6
Arena Seating Plans

Hamilton Stadium/Arena Feasibility Study IBI Group



Indoor Soccer 15,300 Seats

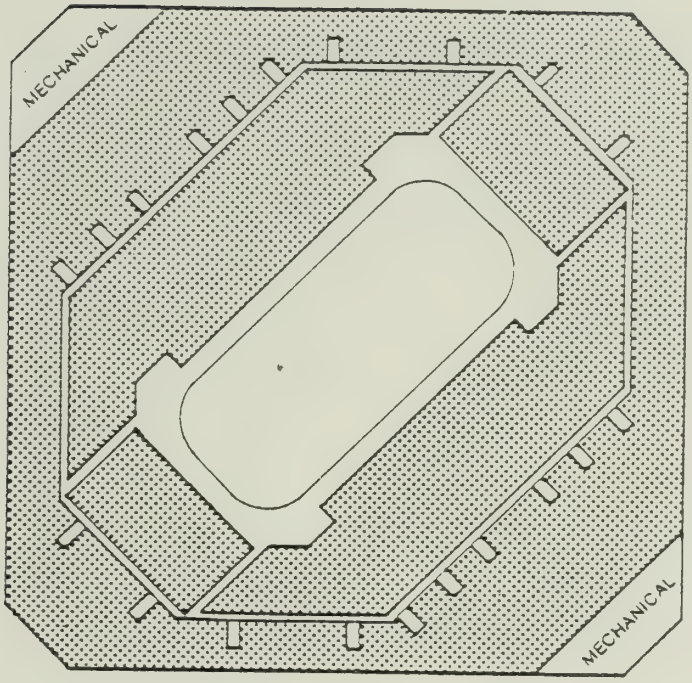


Stage Shows 14,800 Seats

Exhibit
2H7

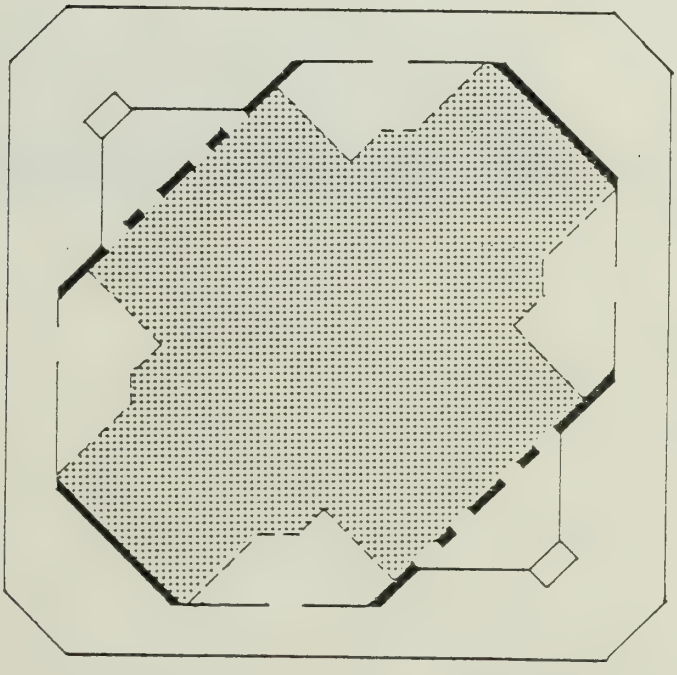
Site 6
Arena Seating Plans

Hamilton Stadium/Arena Feasibility Study IBI Group



Trade Centre

60,000 sq. ft.



Ice Shows

15,300 Seats

Exhibit
2H8

Site 6
Arena Seating Plans

Hamilton Stadium/Arena Feasibility Study IBI Group

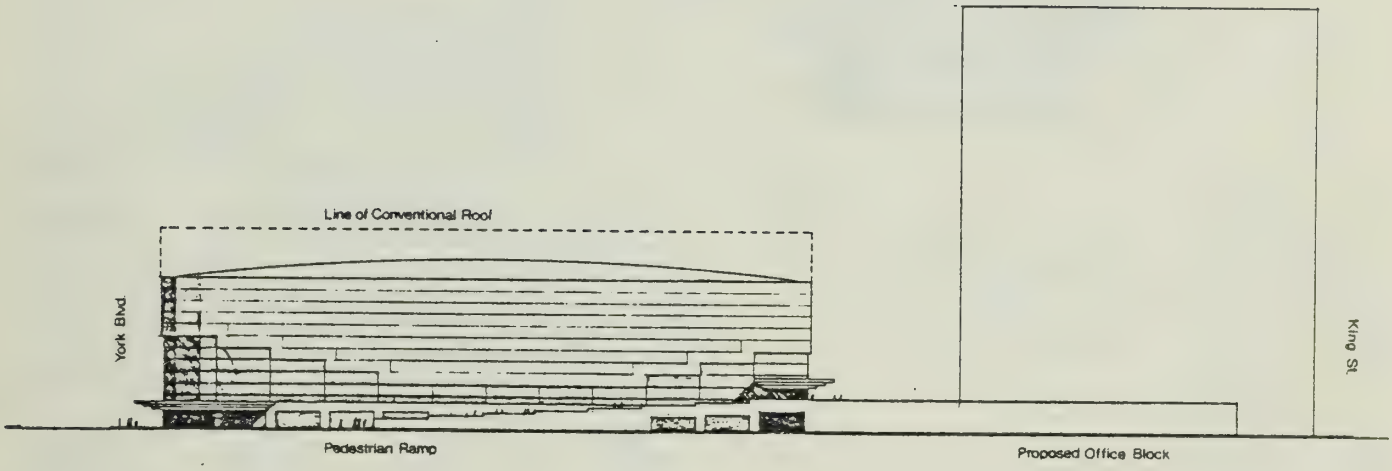


Exhibit
2H9

Site 6
Arena West Elevation

Hamilton Stadium/Arena Feasibility Study IBI Group

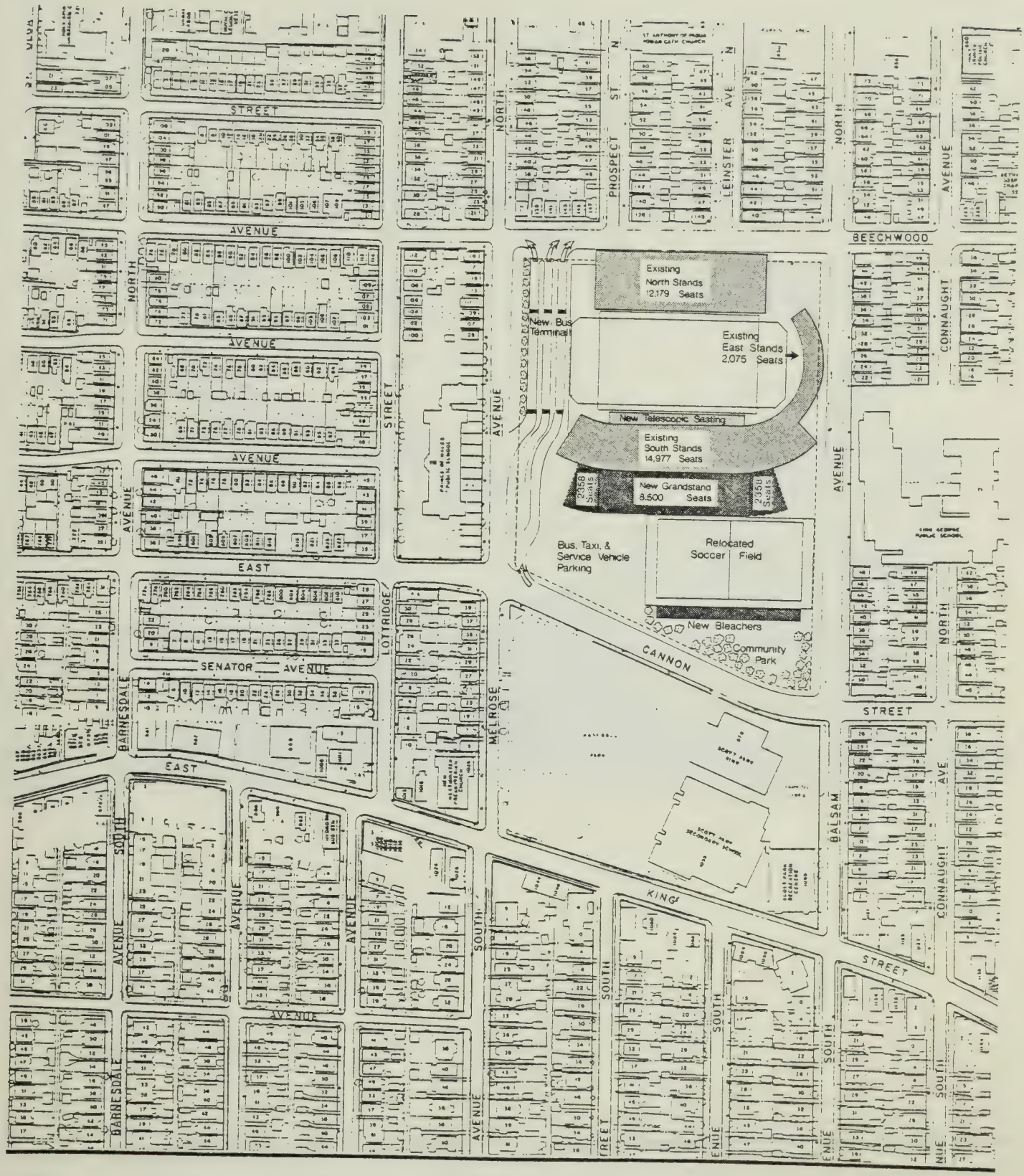


Exhibit
2H10

Site 8
Ivor Wynne Stadium

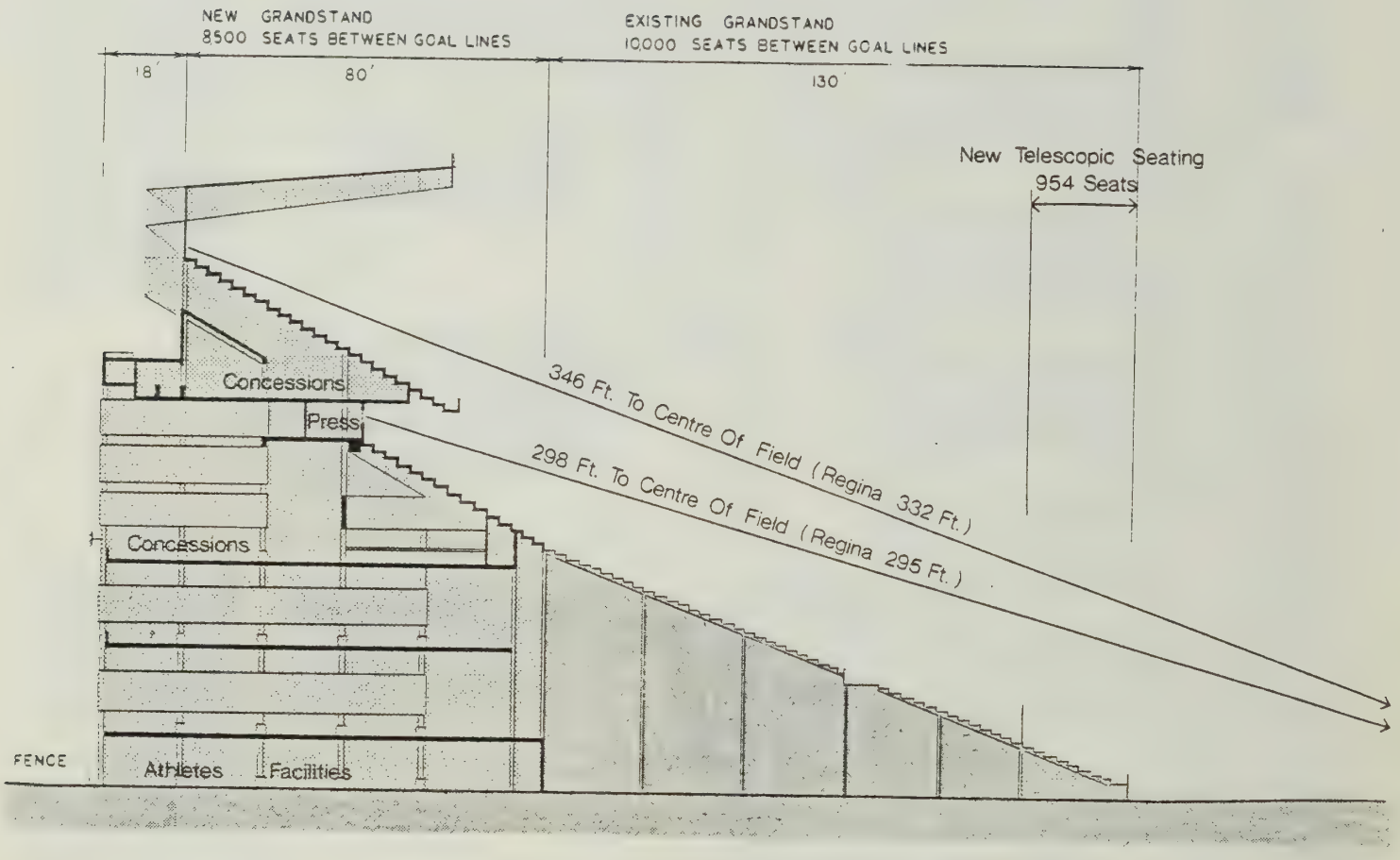


Exhibit
2H11

Site 8
South Grandstand Addition (1)

Hamilton Stadium/Arena Feasibility Study IBI Group

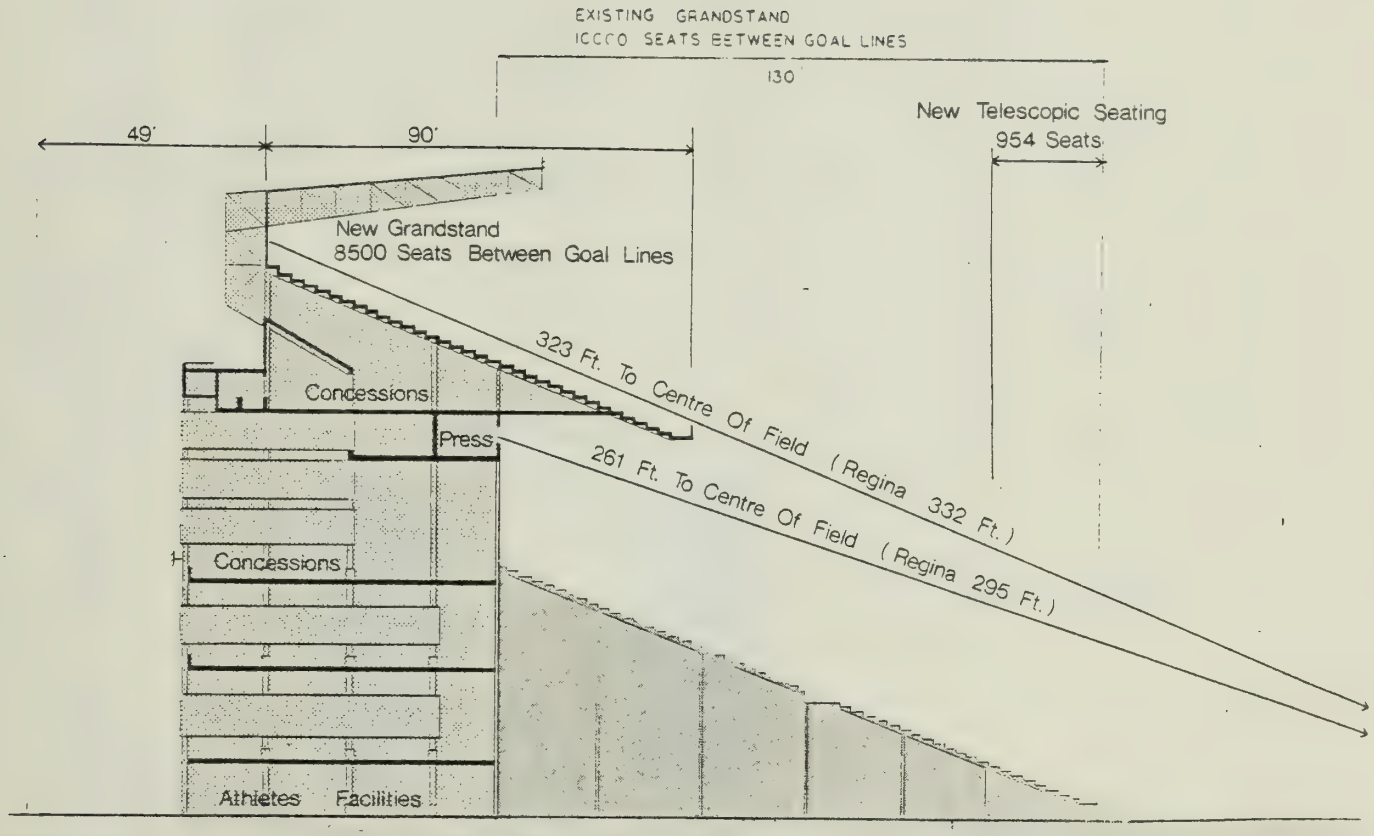


Exhibit
2H12

Site 8
South Grandstand Addition (2)

Hamilton Stadium/Arena Feasibility Study IBI Group

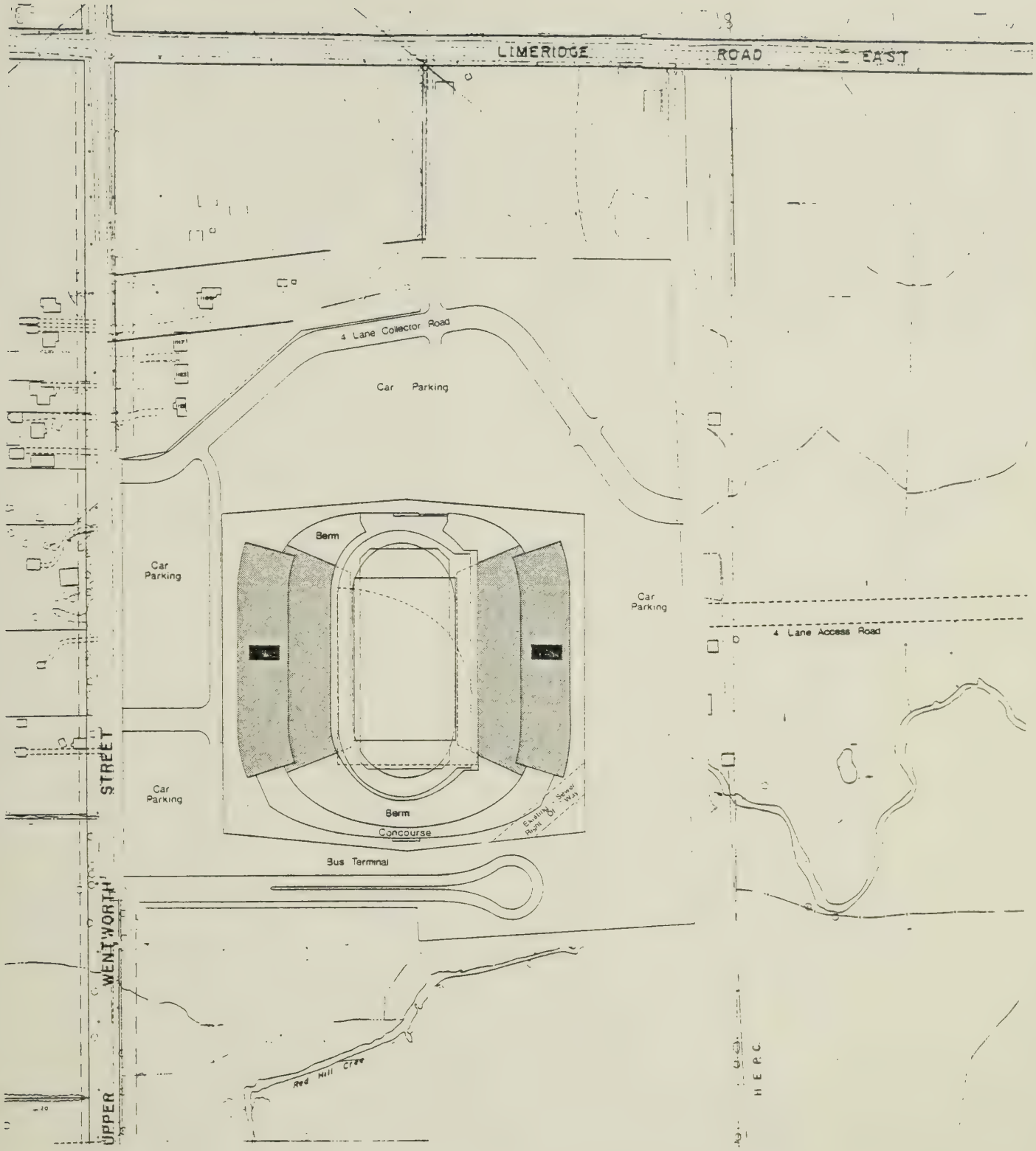


Exhibit
2H13

Site 2 Stadium

Hamilton Stadium/Arena Feasibility Study IBI Group

STADIUM/ARENA FEASIBILITY STUDY

APPENDIX 2I

POTENTIAL FUNDING SOURCES FOR ARENA/TRADE CENTRES AND STADIA

APPENDIX 2I

POTENTIAL FUNDING SOURCES FOR ARENA/TRADE CENTRES AND STADIA

The investigation of funding sources covered both firm and potential sources for capital and operating costs relative to multi-purpose facilities such as arenas, trade and convention facilities, culture, recreation and entertainment centres, as well as for stadia. Attempts were made to identify funding sources for both grants and loans and to establish whether the proposed Hamilton facilities could qualify for assistance based on existing criteria.

From the various enquiries made, it appears that only one solid source of funding is presently available, and even that should be further explored and promoted. The federal Department of Industry, Trade and Commerce assistance in the construction of new Trade and Convention Centres (up to 25% of total capital cost), is the most promising source although this depends on matching funding from the Province.

The federal Department of Fitness and Amateur Sport provides one third of capital funding (if the Province provides another third) for facilities for major sport events, such as the Canada Games, Pan-American Games, Commonwealth Games, etc.; however, the Department does not assist the construction of sport facilities except in support of such major sporting events.

The Wintario Capital Grants Program, currently suspended, could become potentially important when and if it is reintroduced. This program, which was suspended in December, 1978, is presently under review, and will probably be re-introduced, with some changes, after April 1981. Other provincial and federal sources are either non-applicable for the proposed Hamilton facilities or

not substantial enough to constitute a solid funding source for the new arena facility.

The following is a summary of existing or potential sources of funding for the proposed Hamilton Arena/Trade Centre facility.

FEDERAL SOURCES

1. Department of Industry, Trade and Commerce

Based on a federal government policy announced on June 16, 1980, the Department of Industry, Trade and Commerce will provide assistance towards the construction of trade and convention centres which have been shown to be economically viable. This federal assistance is limited to the capital costs, including land, and does not apply to operating costs. The federal contribution under this policy for any one centre is for up to 25% of the total estimated capital cost, including land, or a sum matching the contribution of the provincial government concerned, whichever is less. The total federal assistance under this program for any one year is limited to a maximum of $15 million. Toronto is the first city to benefit from this new program. The proposed new convention centre in Toronto will receive between $19 and $20 million for the construction of the convention facility and for purchasing of land, while Metro Toronto will contribute $13.5 million. Since the total capital cost of the proposed facility is estimated to reach $73 million, the Province is, therefore, expected to cover all or most of the difference ($40 million), through grants or a combination of grants and tax rebates. (Contact: A. Chatain, office of the Honourable Herb Gray, Minister of Industry, Trade and Commerce, Ottawa. (613-966-1880). Note that the Federal grant is conditional upon matching funding being available from the Province.)

2. Department of the Secretary of State - Fitness and Amateur Sport

The Department has provided financial assistance of up to one third of total cost, to cities hosting the Canada Games. This type of funding is available for municipalities holding major international sporting events such as the Canada Games, the Pan-American Games, the Commonwealth Games, the Olympic Games, etc. The assistance is directed towards sport events, i.e. facilities to accommodate such major events, rather than for the construction of sport facilities. This policy is based on Treasury Board regulations, established in 1979.

St. John's, Newfoundland, which hosted the last Canada Summer Games, has benefitted from this type of assistance and so will the City of Thunder Bay which will host the 1981 Canada Games. The City of Calgary will probably get one third of the capital cost for the new Calgary Coliseum; however, this assistance will be awarded only if Calgary is successful in its bid to secure the 1988 Winter Olympics.

The funding process related to the Canada Games involves a federal-provincial-municipal committee which is set up to establish the capital funds required for such games. The province selected to hold the games recommends three potential sites, from which the preferred site is very likely to be selected. The assistance provided to municipalities inclues capital funds for track and field and other facilities for outdoors activities (in the case of summer games). The federal contribution for capital construction for the 1981 Canada Summer Games, to be held in Thunder Bay, is $1.5 million, which constitutes one third of total capital costs. The Province and the local organizing committee provide one third each of the costs. Exhibit 2I1 summarizes the federal

EXHIBIT 211

FEDERAL CONTRIBUTION FOR CAPITAL CONSTRUCTION OF SPORT FACILITIES

City	Major Event	Year	Federal Share[1]
Winnipeg	Pan-American Games	1967	$2.2 million
Halifax	Canada Summer Games	1969	$110,000
Saskatoon	Canada Winter Games	1971	$200,000
Burnaby/ Westminster	Canada Summer Games	1973	$520,000
Lethbridge	Canada Winter Games	1975	$580,000
Montreal	Summer Olympic Games	1976	-[2]
St. John's	Canada Summer Games	1977	$1.0 million
Edmonton	Commonwealth Games	1978	$10.1 million
Brandon	Canada Winter Games	1979	$1.15 million
Thunder Bay	Canada Summer Games	1981	$1.5 million

1) Federal share - 1/3 of capital costs, Province - 1/3 and City & Organizing Committee (Influential Citizens) - 1/3.

2) No Federal contribution was available for direct capital construction. However, indirectly, through the coins and stamps programs ($45 Million) and the Olympic Lottery program ($235 Million), the Federal Government provided substantial assistance to the Montreal Games.

government contribution for capital construction for previous major sport events (Canada Games, Pan-American Games, Commonwealth Games).

The major capital cost for summer games is usually for a swimming pool while for winter games an arena would usually constitute the major capital cost. These costs are set to meet the minimum technical requirements for the Canada Games, as was determined by the federal-provincial-municipal committee.

According to Mr. Knapp, Director of Sport Canada, if Hamilton were to be awarded the Pan-American Games, the City could receive federal assistance of up to one third of the total capital budget.

The earliest Hamilton could bid for the Pan-American Games appears to be 1987, although it is not North America's turn yet. Nevertheless, it is still possible that the 1987 Pan-American Games might be awarded to Canada.

There is a possibility that the 1984 Pre-Olympic basketball qualifying games will be held in Canada. In 1976, the Pre-Olympic tournament was held in Hamilton, using the facility of McMaster University. According to Mr. Jeff Gruson, Executive Director of the Canadian Amateur Basketball Association (CABA), Canada has a very good chance to host again the Pre-Olympic qualifying games for 1984. CABA placed a bid for the tournament and a decision is expected in about one month. Brazil is also lobbying for the games but Mr. Gruson believes that Canada has the best chance. It would most likely be hosted by an Ontario city, and Hamilton's name was mentioned several times as a potentially good site based on geographic location, transportation, etc. The new convention centre was considered as a potential site for the games; however, a

decision to build a new arena could definitely strengthen Hamilton's position. York University might also be considered as a potential site for the games. (Contacts: Mrs. H. Routhier, Secretary to the Honourable Gerald Reagan, Minister responsible for Fitness and Amateur Sport, Ottawa (613-995-1055); Mr. Dick Knapp, Director and Mr. Tony Golab, Consultant, Sport Canada, Ottawa, (613-996-4510).

PROVINCIAL PROGRAMS

1. Ministry of Culture and Recreation

Several capital funding programs are available from the Ministry of Culture and Recreation:

- Grants for Community Facilities (the Community Recreation Centres Act): under this Act municipalities receive funding for the acquisition, construction or renovation of publicly owned recreation facilities such as arenas. Municipalities can receive 25% of eligible costs to a maximum of $75,000 for each facility. Those suffering from "undue financial burden" may receive 50% to a maximum of $150,000.

- The Wintario Capital Grants Program: this program which was suspended on December 31, 1978, was designed to provide support for the purchase, construction or renovation of cultural and recreational facilities and for the conservation of heritage buildings across Ontario. Eligible applicants, which included municipalities, could apply for funds up to one third of the cost of eligible capital projects after all other provincial and federal grants were deducted.

  Recently the Ministry has embarked on a review of capital priorities and based on this review it intends to formulate a new capital funding program. A document entitled "Discussion Paper for Allocation of Funds for Cultural and Recreation Facilities in Ontario" has been distributed to clients of the Ministry to stimulate further discussion and assist the Ministry in developing the details of a new program. According to Mr. Michael Noon, Manager of the Capital Support Unit, Ontario Ministry of Culture and Recreation, this discussion paper is presently under review and would probably be implemented to form the basis of the Ministry's new capital funding program during the next fiscal year. The Minister will probably make a statement with regard to this new program later in the year

while the earliest date for implementation will probably be after April 1, 1981.

Mr. Noon believes that the Hamilton Arena Project could qualify for capital funding from the proposed program; however, it is "hard to say" since no definite criteria have been set. The proposed capital program is geared primarily towards rehabilitation and expansion of existing facilities, but it will also provide assistance for new construction. In allocating funds through the proposed new program, priority would be given to projects which:

- show the greatest need for a facility (relative to other existing or desired facilities);
- exhibit strong local financial and other resource commitments (for both capital and future operating needs);
- demonstrate efficient design and energy/space conservation (including building recycling);
- are accessible to all citizens, including physically handicapped persons;
- have multi-purpose and multi-use activity proposals;
- have undertaken measures to ensure cost control in all phases of facility development;
- demonstrate the most thoughtful planning and the greatest degree of broad community consultation;
- have paid special attention to aesthetic and design considerations.

In regards to new construction, the Ministry proposes that the new capital funding program will assist projects where the applicant can demonstrate both the need for and the on-going financial viability of the project. In this regard, projects that have a major impact on a community and surrounding regions would be required to be supported by a feasibility study. The proposed new program would be limited to funding of up to one third of capital construction costs through both Lottery and Provincial Government programs, irrespective of other sources of

funds. This would be an important difference from earlier programs. (Contact: Mr. Michael Noon, Manager, Capital Support Unit, Ontario Ministry of Culture and Recreation.)

Canada Games

According to Mr. Secord, Assistant Deputy Minister, Sports, Recreation and Fitness, Ontario Ministry of Culture and Recreation, Ontario's next opportunity to hold the Canada Games does not come until the winter of 2003. Apparently, a similar kind of arrangement (i.e. one third contribution of total capital funds) could be assumed if Hamilton were awarded the Pan-American Games, provided there were matching funds from the Province.

STADIUM/ARENA FEASIBILITY STUDY

APPENDIX 2J

ECONOMIC AND OTHER IMPACTS

APPENDIX 2J

ECONOMIC AND OTHER IMPACTS

GENERAL APPROACH

The purpose of the economic analysis described in this section is to estimate the impact on local income and employment created by a new arena complex and a new or enlarged football stadium.

Two categories of expenditure are the sources of impact on local employment and income:

1. Expenditures of various types by people attending events held at the arena or stadium;
2. Construction expenditures.

From the point of view of impacts on the local Hamilton area economy, the first category must be broken down into two parts. The most important expenditures are those which represent new dollars flowing into the Hamilton economy. These will be expenditures made by people coming from outside the Hamilton area, and expenditures by Hamilton area residents which replace expenditures now made outside the Hamilton area. The second part of consumer expenditures are dollars which are now spent on other activities in the Hamilton area. These dollars will create little, if any, additional impact on the Hamilton economy. This analysis is most concerned with expenditures of the first type.

The expenditures on construction and by persons attending the various events flow directly to many businesses in the local economy, e.g. construction companies, food service companies. The resulting income to local businesses, employment, and wages and salaries, are referred to as direct impacts. But these

direct impacts reveal only part of the total effect of these expenditures on the local economy. This can be illustrated by an example of how one type of expenditure ripples through the economy. A football fan buying a hotdog at a stadium concession creates a direct impact in terms of income to a food service company and employment and wages in the food service industry. The food service company makes purchases from wholesale food and other suppliers which, in turn, make purchases from agricultural producers and other industries. Each supplier in turn creates demands on other suppliers, generating further income and employment. The income and employment generated in industries which support those industries affected directly by stadium and arena related expenditures are referred to as indirect impacts. But there is yet another component of the total economic impact. Employees in the support industries indirectly affected by the original expenditures spend their wages on various consumption goods and investment, thereby creating further jobs and income in local businesses. This last category is referred to as induced impacts.

The general approach used in this analysis is to estimate total direct expenditures based on a market survey and other data, and to use these estimates in calculating total income and employment effects (the sum of direct, indirect and induced impacts) on the Hamilton area economy.

This type of analysis, particularly when done for a relatively small local area, requires many assumptions and approximations; thus, the figures derived from the analysis should be regarded as representative of the magnitude of impacts caused by the facilities, and not as firm predictions.

EXHIBIT 2J1

COMMUNITIES IN PRIMARY AND SECONDARY MARKET AREAS

PRIMARY MARKET AREA	SECONDARY MARKET AREA
Hamilton	Kitchener
Ancaster	Cambridge
Dundas	Waterloo
Burlington	Guelph
Grimsby	Oakville
Stoney Creek	St. Catharines
Other Small Municipalities	Brantford
	Paris
	Niagara Falls
	Welland

METHODOLOGY

Expenditures by Persons Attending Events at Stadium and Arena/Trade Centre

Persons attending the various types of event that would be held at the arena/trade centre and stadium would make a variety of expenditure . These would include a ticket for the event, transportation (gas and parking, or public transportation fare), food, drinks, programs and souvenirs at the event, and food, drinks and entertainment outside the stadium or arena. The magnitude of these expenditures has been estimated based on the public survey carried out in September as part of this study and on other supporting data. The survey asked people in the primary (Hamilton area) and secondary (out of town) market areas (Exhibit 2J1 opposite, describes the two areas) about their attendance at various events and what they have spent when attending them. Per capital expenditures in the categories listed above, averaged over all people who attended an event (and not just over the number who actually made expenditures), were derived separately for the primary and secondary market areas. Per capita expenditures by persons in the primary market area are in most cases less than by people in the secondary market area. This is due to the fact that primary market area paople would be closer to the arena or stadium and thus would spend less on transportation and would be less likely to go out for food or drinks before or after the event. Per capita expenditures for the various types of expenditure are shown in Exhibit 2J2 (overleaf) for the primary and secondary market areas.

Total expenditures in each category were calculated by multiplying the per capita expenditures of Exhibit 2J2 by the total annual attendance at the arena and stadium for primary and secondary market areas. Attendance was allocated to primary and secondary areas based on the results of the market survey, as shown in Exhibit 2J3.

EXHIBIT 2J2

PER CAPITA EXPENDITURES ASSOCIATED WITH ARENA AND STADIUM EVENTS BY CATEGORY AND MARKET AREA[1]

	PRIMARY MARKET AREA	SECONDARY MARKET AREA
Food and Beverage (in Stadium or Arena)	$1.50	$2.00
Food and Beverage/ Amusement, Recreation (out of Stadium or Arena)	3.75	5.25
Retail Trade (in Stadium or Arena)	0.60	0.80
Service Stations[2] (gasoline)	0.67-1.06 (Arena) 1.06-1.29 (Stadium)	1.35-2.00 (Arena) 2.02-2.25 (Stadium)
Parking and Public Transportation[2]	0.70-0.74 (Arena) 0.74-0.99 (Stadium)	0.90-1.60 (Arena) 0.94-1.13 (Stadium)
Accommodation	Nil	Nil

[1]Source: September, 1980 market survey by Goldfarb Consultants and other supporting data.

[2]The different costs for arena and stadium and the ranges for each reflect different proportions of auto/public transit trips and varying availability of free on-street parking.

EXHIBIT 2J3

SPLIT OF ATTENDANCE
AT ARENA AND STADIUM EVENTS
BY PRIMARY AND SECONDARY MARKET AREAS

		PRIMARY MARKET AREA	SECONDARY MARKET AREA
Arena/Trade Centre		62%	38%
New Stadium	Tiger Cats	77%	23%
	Other	60%	40%
Expanded Ivor Wynne	Tiger Cats	77%	23%

Only the portion of these total expenditures which represents the spending of money not now spent in the Hamilton area is relevant from the point of view of local economic impact. Dollars which are merely diverted from other activities in the area to events at the stadium or arena will have little or no additional impact on income or employment.

The arena and stadium must be treated separately, since all events at the arena would be new to Hamilton, while a new stadium or expanded Ivor Wynne Stadium would only encourage additional attendance at football games and, in the case of a new stadium, would allow additionalevent types to be held. The forecast is based on one additional concert and one other event, as forecast by the market analyses. However, the potential for other uses would be created by the stadium, e.g. outdoor extravaganzas and festivals, and these would further add to the impact in future.

For the purposes of the arena analysis, it has been assumed that all expenditures by people coming from the secondary market area would be new dollars flowing into the Hamilton economy.* With respect to people in the primary market area, it has been assumed that 50% of the expenditures at the arena represent new dollars, while the remaining 50% would be expenditures shifted from other activities in the Hamilton area. The figure of 50% is an approximation, based on interpretation of responses to questions in the market survey.

For the stadium, only expenditures which occur as a result of increased attendance due to the expansion of Ivor Wynne or the construction of a new stadium, are included in the analysis. For the two stadium options, football attendance is assumed to increase by 90,000 persons per year and, for the new stadium option only, expenditures by an additional 55,000 people attending concerts or similar events are included. As in the arena analysis, only 50% of expenditures made by people

*An exception is gasoline expenditures, half of which are assumed to occur outside the Hamilton area.

from the primary market area are included, as it is assumed that about half of the money they spend at the stadium will have been diverted from other activities in the local area. This diverted expenditure is assumed not to create any net impact on the local economy.

Direct expenditures describe only part of the total economic impact. There are, in addition, indirect and induced effects on income, and direct, indirect and induced effects on employment. A recent analysis of tourism expenditures in Ontario by the Ministry of Industry and Tourism* provides the means by which the estimates of direct expenditure can be used to expand the picture of impact on the local Hamilton economy.

The Ministry of Industry and Tourism (MIT) report presents a sectoral and regional analysis of tourism expenditures in Ontario for 1976. The Province is divided into 10 regions and the economy into 6 sectors (Public Transportation; Accommodation; Food and Beverage; Amusement/Recreation; Retail Trade; Service Stations). Region 4 comprises the counties of Welland, Haldimand, Brant, Wentworth, and Lincoln. This analysis assumes that the impact of tourism expenditures in Region 4 is reasonably representative of the impact of arena and stadium related expenditures in Hamilton. For each of the 6 sectors of the economy, the report gives income and employment multipliers. The product of direct income or employment in a given sector and the appropriate multiplier gives the total direct, indirect and induced impacts on income or employment for that sector.

The income and employment multipliers used in this analysis were those given in the MIT report for Region 4 with one exception. The public transportation multiplier includes plane, bus, train, and boat travel, all of which are not

*Ministry of Industry and Tourism, The Economic Impact of Tourism in Ontario and Regions, 1976, December, 1978

relevant to the stadium or arena. It was judged more appropriate to use the industrial income and employment multipliers for "transportation, storage and trade" in Ontario. These multipliers are lower than the tourism multipliers for public transportation in Region 4.

The regional/sectoral data on direct expenditures and direct employment were used in this analysis to derive ratios of direct employment:direct expenditure (man-years per $ million) for each of the 6 sectors, which were used to calculate the amount of direct employment generated by expenditures associated with the arena and stadium. The effect of the expenditures on total wages and salaries in the Hamilton area was estimated by multiplying total employment (direct, indirect, and induced) by an average wage and salary level of $15,000. The figure of $15,000 was obtained by assuming that the figure of $11,027, used in the MIT report, has increased by 8% per annum.

Exhibits 2J4, 2J5 and 2J6 (overleaf) show the results of the economic impact analysis. The impact is given separately for three options: arena/trade centre; new stadium; and expanded Ivor Wynne Stadium.

The one economic sector for which no impact is estimated is accommodation. The market survey showed very few people in the primary or secondary market areas incurring accommodation expenses when attending events of the type which would be held at the arena or stadium. Thus, no estimate of accommodation expenditure has been made in this analysis. Nevertheless, there would probably be at least some expenditure in this sector, particularly by performers and employees of shows staged at the arena. Further, to the extent that new trade shows are attracted to Hamilton, there would be a positive impact on the accommodation and other sectors.

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